MEDICAL TIMES

British Tuberculosis Service
Minor Psychiatry
Multiple Fractures
Infertility and Fertility
Vitamin A in Acne Vulgaris
Wolff-Parkinson-White Syndrome
Intractable Anginal Pain
Thrombocytopenic Purpura

Vol. 77 October 1949 No. 10

The Journal of General Practice

More rapid relief

of gastric hyperacidity

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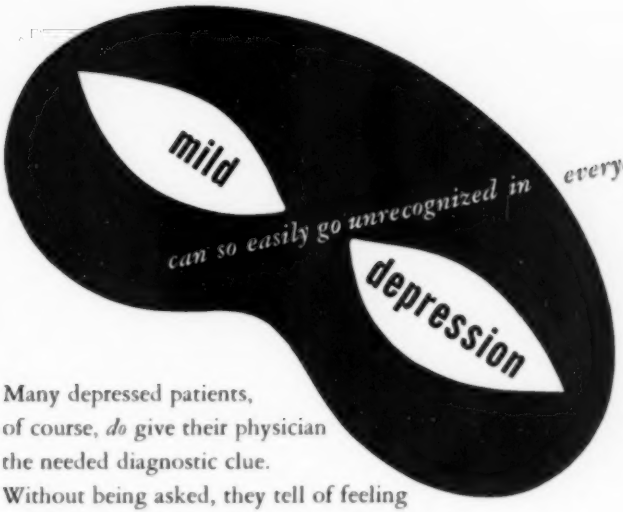

can so easily go unrecognized in everyday practice

Many depressed patients,
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the needed diagnostic clue.
Without being asked, they tell of feeling
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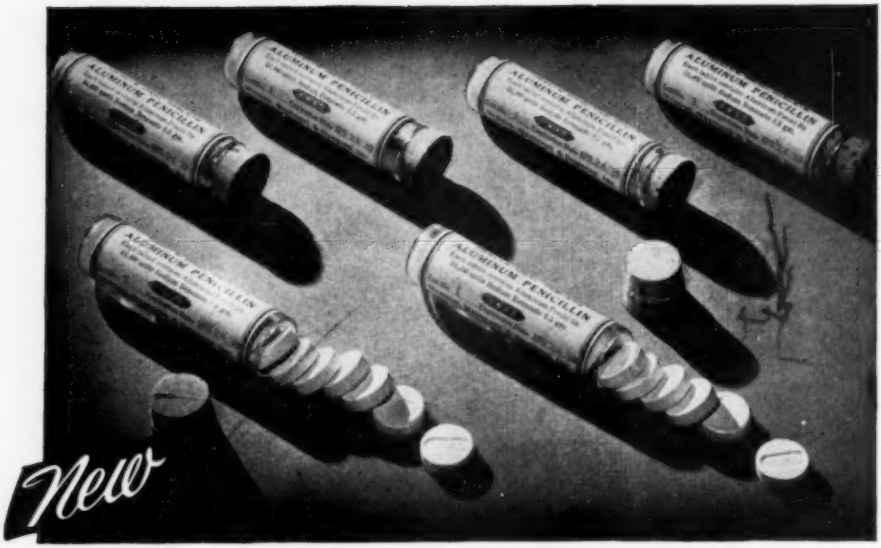

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*Theodore, F.H.: Arch. Ophth. 41:83, 1949.

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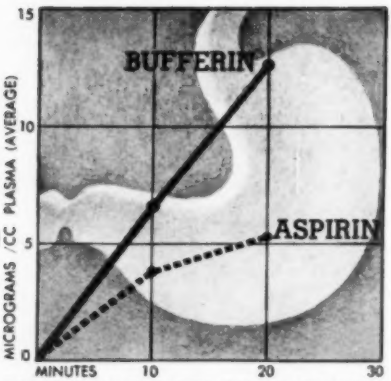

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Medical Book News

save **68** *more fetal lives in habitual abortion, threatened abortion and premature labor*

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des 25 mg. tablets of Grant Process highly micronized triple crystallized diethylstilbestrol U.S.P. XIII are available in containers of 30, 100, and 500 tablets.

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REFERENCES:

(1) Rosenblum, G. and Melinkoff, E. Preservation of the Threatened Pregnancy with Particular Reference to the Use of Diethylstilbestrol. West. Jr. Surg. Obs. and Gyn. 55, 597-603. Nov. 1947.

(2) Silbernagel, W. M. and Burt, O. P. Ohio State Med. Jr. 39, 430, May 1943.

(3) Karnaky, K. J. Estrogenic Tolerance in Pregnant Women. Amer. Jr. Obs. and Gyn. 53, 312-316, 1947.

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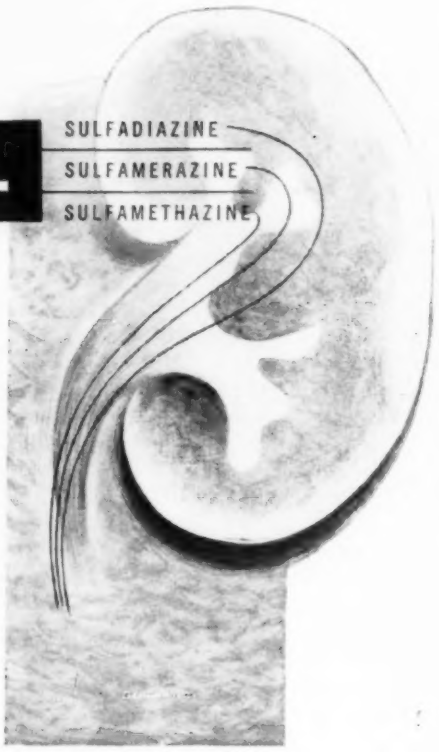

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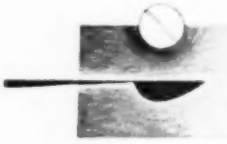

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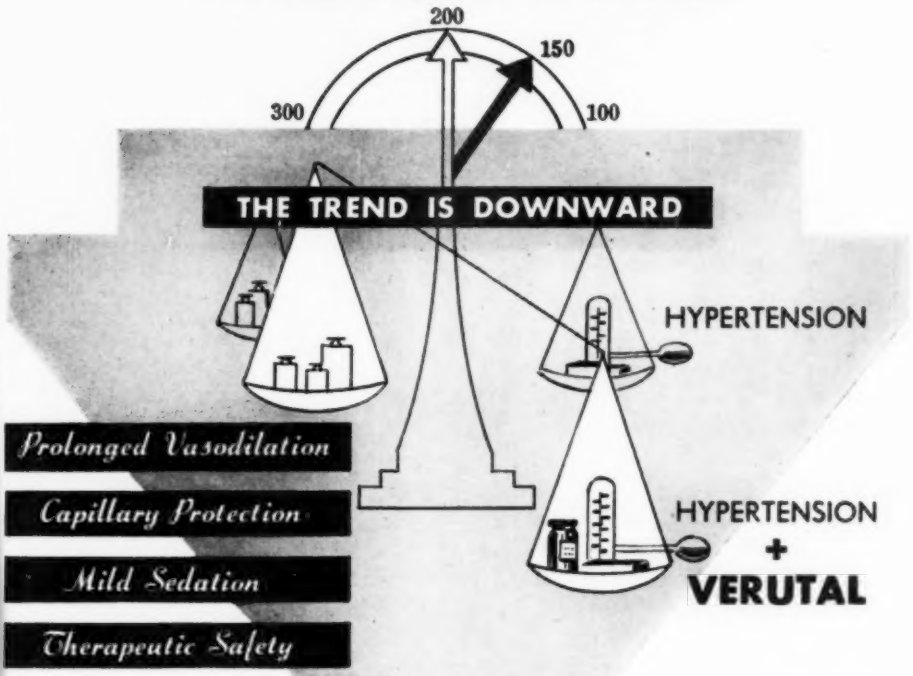

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WITHIN 24 HOURS

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BIBLIOGRAPHY: 1. Couperus, M.: J. Invest. Dermat. *13*:35, 1949. 2. Tronstein, A. J.: Ohio State M. J., *in press*. 3. Goldman, L.: Connecticut M. *J.* *13*:624, 1949. 4. Patterson, R. L.: Work in progress. 5. Domenjoz, R.: Schweiz. med. Wchnschr. *76*:1210, 1946. 6. Burckhardt, W., and Rymarowicz, R.: Schweiz. med. Wchnschr. *76*:1213, 1946.

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MEDICAMENTA VERA

LETTERS

TO THE EDITOR

This department is offered as an Open Forum for the discussion of topical medical issues. All letters must be signed. However, to protect the identity of writers, who are invited to comment on controversial subjects, names will be omitted when requested.

NATIONAL HEALTH INSURANCE AND HOSPITAL PRACTICE

Ed. The Editor wishes to acknowledge, with thanks, communications from Dr. Thomas A. Messina of East Orange, N. J., Dr. J. L. Spaldo of Somerville, N. J., Dr. J. F. Moriarity of Atlantic, Iowa, and Dr. A. W. Magosci of York Village, Maine; all of whom are consistent in their dislike for a proposed system of National Health Insurance. In discussing the red tape and burdensome forms which would undoubtedly hamper the physician under Socialized Medicine, Dr. Messina comments additionally, ". . . I was in the Army and the red tape was bad there. It would be a lot worse under government medicine, and if the payments were like the V.A., then there'd be a long time between checks."

CLOSED HOSPITAL STAFFS!

Ed. The most frequently discussed topic in mail reaching the Editor's desk is on the subject of the so-called "Closed Staff." The intensity of feeling on this subject is such that many of the writers wish us to withhold their identity, even though their letters are on file. A few of the more pertinent observations follow:

". . . I believe that the closed staff policy in private hospitals should be modified and that privileges should be opened to any licensed physician of the respective communities." Springfield, Mass.

—Continued on page 32a

compare

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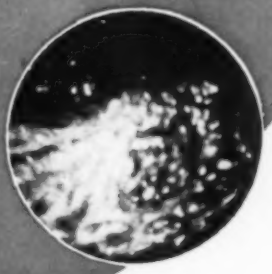
Gastrophotograph of mucosa coated by Resinat.



Gastrophotograph of mucosa coated by other substance.

1. Weiss, S., Espinal, R.B. & Weiss, J.: Therapeutic Application of Anion Exchange Resins in the Treatment of Peptic Ulcer, Review of Gastroenterology, 16:501-509, June, 1949.

RESINAT

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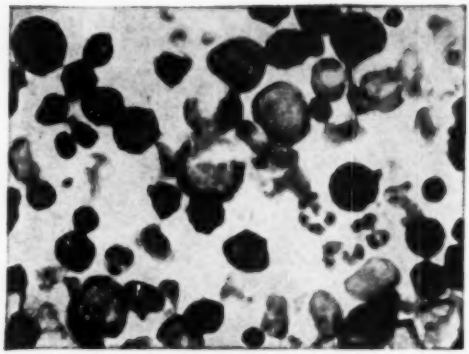
- ★ **MEGALOBLASTIC ANEMIA OF INFANCY (certain cases)**
- ★ **SPRUE (tropical and nontropical)**



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COBIONE:

- **A crystalline compound of extremely high potency.**
- **Effective in extremely low doses, because of its high potency.**
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- **No known toxicity in recommended dosages.**
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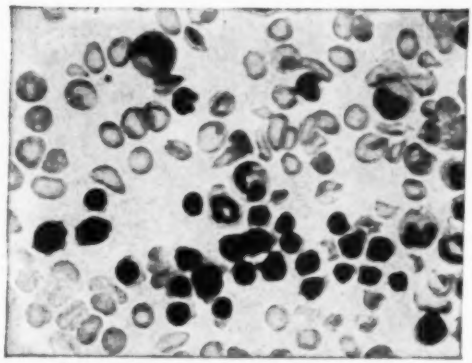

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B_{12}

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1. Friedlaender & Friedlaender: Amer. Pract. 2:643 (June) 1948.

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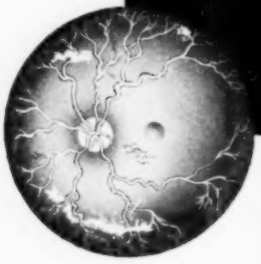
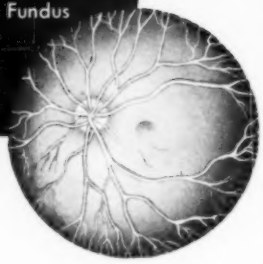


Normal Ocular Fundus



*RUTAMINAL is the trademark of Schenley Laboratories, Inc. and designates exclusively its brand of tablets containing rutin, aminophylline, and phenobarbital.

schenley laboratories, inc., 350 fifth ave., new york 1, n. y.

description

TYROZETS are pleasantly flavored, pink lozenges, each containing 1 mg. of antibiotic *tyrothricin*, and 5 mg. of soothing, analgesic *benzocaine*.

indications

Topical treatment of sore throat associated with colds, hay fever, and other allergies, or resulting from chemical irritants or vocal strain also postsurgical care of the pharynx.

action

TYROZETS quickly relieve the pain of sore throats (benzocaine), and help suppress local infections due to a wide range of gram-positive organisms (tyrothricin).

Tyrozets®

Antibiotic-Anesthetic Throat Lozenges

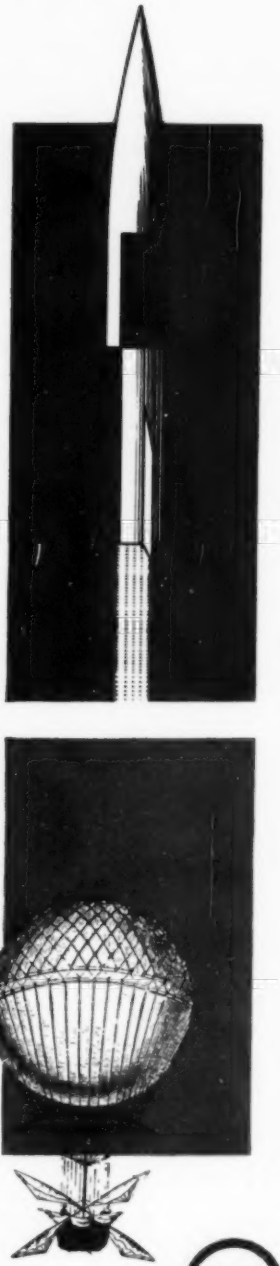
Supplied in unbreakable, amber-plastic vials of 12 lozenges.

Sharp & Dohme, Philadelphia 1, Pa.

SHARP & DOHME

"SOMETHING NEW, SOMETHING OLD..."

THALINOL-MRT



—a gelatin capsule containing Phenolphthalein, U.S.P., uniformly dispersed in a special vehicle—is NEW. The inert base releases the drug slowly, causing it to act gently but firmly in the large bowel. Resulting stools approach normal consistency with a minimum of griping, dehydration or tendency toward habit formation.

Phenolphthalein, U.S.P. has been used for many years as an intestinal stimulant (not an irritant) in functional or atonic constipation. It does not cause renal or hepatic damage. Virtually nontoxic, in prescribed dosages, it is ideal for nursing mothers, and in old age, as well as for the average patient.

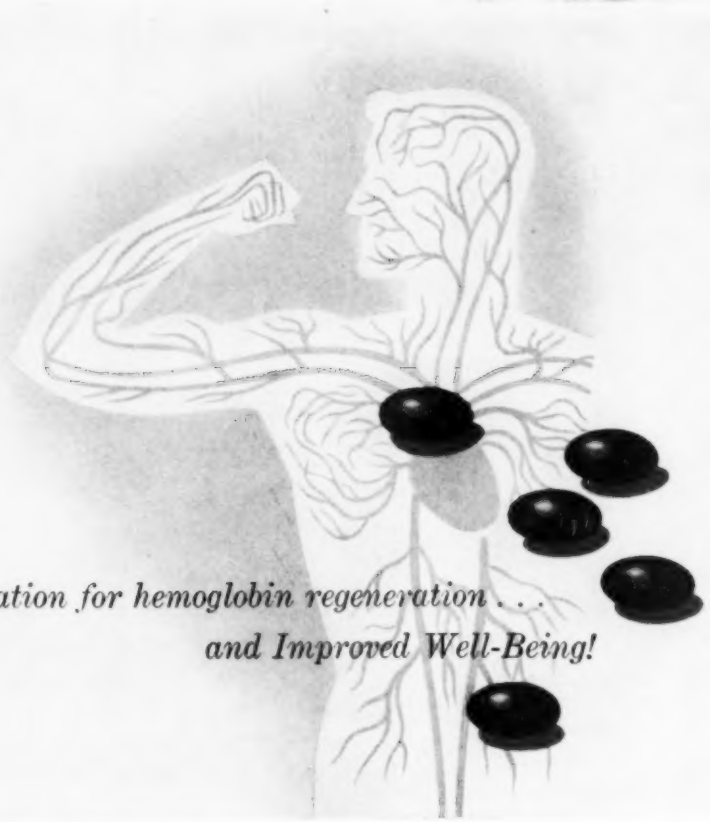
Supplied—Gelatin Capsules (each containing 0.33 Gm. (5 gr.) phenolphthalein) in bottles of 30 and 100.

MRT

literature and samples on request

original contribution by **MARVIN R. THOMPSON, INC.**
STAMFORD, CONNECTICUT
Service to Medicine

MRT



Foundation for hemoglobin regeneration . . .
and Improved Well-Being!

HEMOSULES* 'WARNER'

the preferred hematinic . . .

HEMOSULES* 'Warner' contains the several hematopoietic factors of established importance in blood regeneration for obtaining optimal results in hypochromic anemias.

HEMOSULES* 'Warner' are high-potency, vitamin-rich capsules which also contain liver concentrate and highly absorbable ferrous sulfate.

Each HEMOSULES* capsule provides:	
Ferrous sulphate, Dried U.S.P.	162.0 mg (2.5 grs)
Liver concentrate (1:20)	162.0 mg (2.5 grs)
Folic acid**	0.75 mg
Thiamine hydrochloride (vitamin B_1)	1.0 mg
Riboflavin (vitamin B_2)	1.0 mg
Niacinamide†	4.0 mg
Pyridoxine hydrochloride (vitamin B_6)**	0.5 mg
Calcium pantothenate**	0.5 mg
Ascorbic acid (vitamin C)	15.0 mg

HEMOSULES* are indicated in all secondary anemias due to or accompanying impaired absorption or assimilation, nutritive inadequacy, increased requirements in obstetrical patients, gynecological and gastroenterological disorders, surgical operations, and infectious diseases.

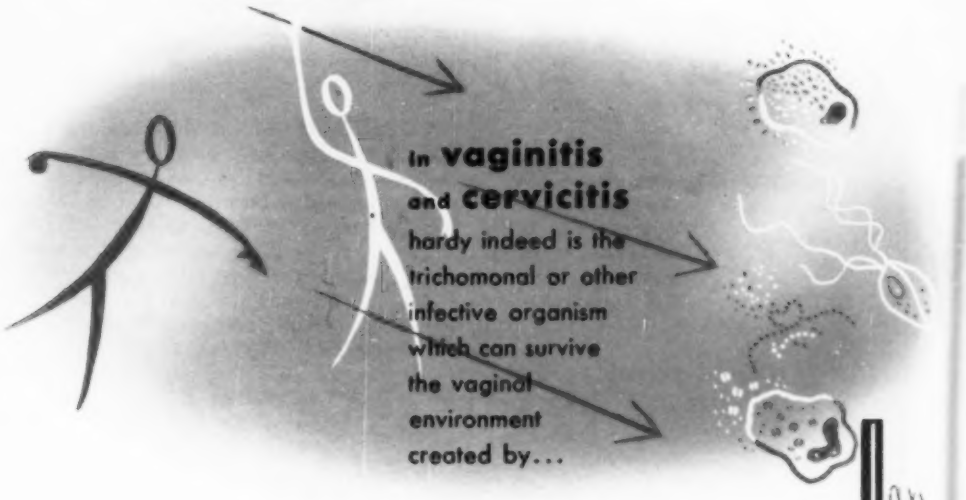
HEMOSULES* 'Warner'—hematinic capsules—are available in bottles of 96, 250 and 1,000 at all leading pharmacists.

WILLIAM R. WARNER & CO., INC.
New York St. Louis

*Trade Mark
**The need for pyridoxine hydrochloride, calcium pantothenate and folic acid in human nutrition has not been established.
†The minimum daily requirement for niacinamide has not been established.

how to get rid of

undesirable tenants



In **vaginitis** and **cervicitis** hardy indeed is the trichomonal or other infective organism which can survive the vaginal environment created by...

westhiazole vaginal

single dose disposable applicators

Safe, dainty, easy-to-use **westhiazole® vaginal** rapidly produces.

1. **a vaginal acidity untenable** to most pathogenic organisms.
2. **speedy control** of discharge, itching, foul odor, and other distress.
3. **more rapid recovery** by elimination of secondary as well as primary infection; recovery in vaginitis averages 2 to 7 weeks; in cervicitis 3 weeks.

westhiazole vaginal jelly contains 10% SULFATHIAZOLE, 4% UREA, 3% LACTIC ACID, 1% ACETIC ACID in a polyethylene base.

samples? literature? please write to

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LETTERS

continued

". . . Staff positions should not be decided upon the basis of Board Certifications only. . . . Years of practice and good standing are of more importance." Miami Beach, Fla.

". . . Yes, the closed staff should be modified so that any M.D. who is a member in good standing of his local medical society and properly licensed should be able to take patients to the hospital.

"I was in the Army and when I came back I found the hospital appointments closed to me—my reward for having served—you know, nothing too good for the ex-soldier!" Denver, Colo.

BATTLE OF THE LUMINA

"Your statement in the Varicose Veins article (August issue) that there can be an 'inherent weakness of the lumina' is absurd. How can there be a weakness of a space (lumen)?"

Criticus

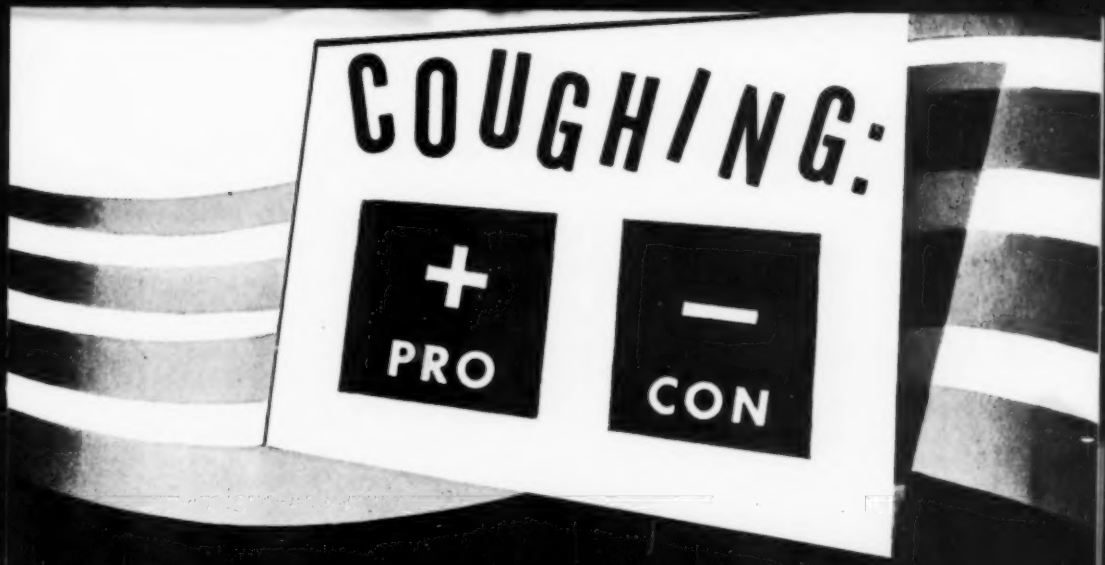
Ed. Although the choice of words might be disputed the meaning is clear. Dr. I. S. Wright, in his book *Vascular Diseases in Clinical Practice,* published in 1948, uses the same method of expression: "Primary varicose veins are attributed to an inherent *weakness of the venous lumina* because certain inciting facts lead to their appearance in some individuals and not in others."

LIKES M. T.

"The articles and summaries I have read in MEDICAL TIMES give excellent summaries of the subjects they deal with, and I feel that they are extremely useful not only because of their time-saving value, but also because they can be filed and can serve as a brief and yet complete reference of all aspects of the questions."

Frank A. Craig, M.D.
New York, N. Y.


FULFILLING EVERY
REQUIREMENT OF EFFECTIVENESS
AND PATIENT-ACCEPTANCE
Ramses
VAGINAL JELLY
1 Immobilizes sperm in the fastest time recognized under the Brown and Gamble technique
2 Occludes the cervix for as long as 10 hours—effective barrier action
3 Nonirritating and nontoxic —safe for continued use
4 Crystal clear, nonstaining, delicately fragrant—esthetically agreeable
5 Will not liquefy at body temperature—not excessively lubricating
FOR ECONOMY TO YOUR PATIENTS
SPECIFY THE LARGE FIVE-OUNCE SIZE
ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY
Ramses
VAGINAL JELLY
ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY
gynecological division
JULIUS SCHMID, INC.
423 West 55th St., New York 19, N. Y.
quality first since 1883
Active Ingredients: Dodecaethyleneglycol Monolaurate 5%; Boric Acid 1%; Alcohol 5%



On the one hand, a hyperactive cough is distressing, debilitating and menacing. Violent bursts of coughing, especially in the oldest and youngest patients, are a burdensome obstacle in the path of recovery and may threaten serious complications.

DIATUSSIN®

Bischoff

promptly and effectively controls cough spasm and averts its dangers.

On the other hand, the physiologic cough-reflex is a protective necessity, for it permits expulsion of mucus, irritants and pathogens from the bronchial tree. Therefore, this reflex should not suddenly be narcotized into non-existence. DIATUSSIN is non-narcotic. It decreases cough frequency and strain and liquefies thick mucus without eradicating the beneficial cough-reflex. And DIATUSSIN is palatable and well tolerated by patients of all age groups.

Samples and literature are available upon physician's request.

DIATUSSIN concentrated extract, 2 to 7 drops depending on age, two or three times daily. Supplied in 6 cc. dropper bottles.

DIATUSSIN Syrup: each teaspoonful contains 2 drops of concentrated extract. Supplied in 4 oz. and 1 pint bottles.

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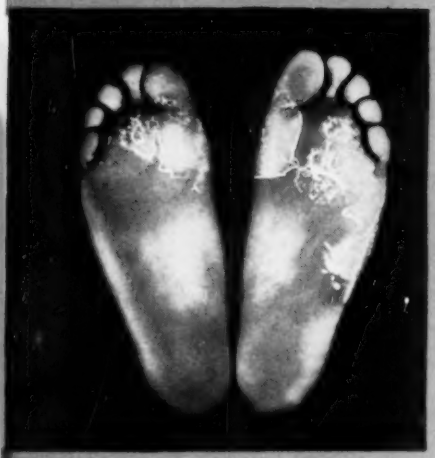
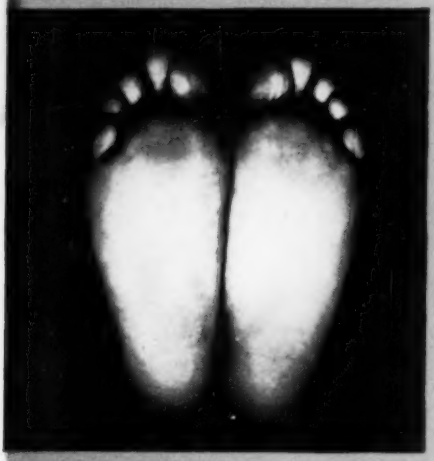
TRULY FUNGICIDAL RESULTS



BEFORE: Athlete's foot. 12 years' duration. October 1, 1948.

AFTER: Same case, January 2, 1949, after 3 months' treatment.



Further evidence of Octofen's superiority in treatment of athlete's foot. A recent study conducted by leading eastern dermatologists, involving the most severe types of dermatophytosis, reveals excellent results in 92 out of 94 cases. Octofen was the sole therapeutic agent!

Bottles of 4 Ounces
For Your Rx Convenience

THE SUPERIORITY OF OCTOFEN CAN BE

IN 92 OUT OF 94 CASES . . .

If you have not yet tried **Octofen**, you owe it to yourself—to your patients—to find out that **Octofen's** wide recognition is justly deserved.

We think it vital that you consider these factors:

Octofen is a true fungicide which kills fungi on contact.

Octofen has been shown to clear up athlete's foot in 1 week to 3 months, depending upon the severity of the case.

Octofen has shown no primary irritation or sensitization in clinical work to date.

Octofen makes overtreatment dermatitis unnecessary.

Octofen is entirely free from notorious caustic irritants, heavy metals, tars, oils, phenols or alkalies.

Octofen is potent, nonirritating, greaseless.

In clinical studies, in private practice, **Octofen** is producing history-making results. See for yourself—send today for free clinical trial packages.

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A TRUE FUNGICIDE

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Bridgeport 9, Connecticut

Gentlemen:

Please send me **Free**, four 1-oz. sample packages of **Octofen**—sufficient to test its efficacy—and descriptive literature.

Name_____ M.D.

Address_____ City & State_____

MEASURED IN FEET SUCCESSFULLY TREATED!

8 OUT OF 10

Intensive investigation during the past decade in rheumatism clinics throughout the country has shown conclusively that *eight out of ten* chronic arthritics adequately treated with Ertron® respond favorably. The local effect – diminished swelling and pain, increased mobility and joint function – is paralleled by a no less striking systemic effect, characterized by a sense of physical and mental well-being. Tolerance to Ertron is high. Severe reactions requiring cessation of therapy are rare (incidence 1.4%); minor side effects (incidence 8%) respond to temporary interruption of therapy or reduction of dosage and usually do not recur when treatment is resumed or dosage increased.

arthrokinetic action of ERTRON

". . . the function of small joints, particularly of the metacarpophalangeal and phalangeal joints, was evidenced by decrease in swelling and pain, allowing complete functional closure of both hands."[1]

systemic effect of ERTRON

". . . an improved sense of well-being, increased appetite, a more normal mental state, more restful sleep, less pain and, in almost every case the patient becomes very much more optimistic."[2]

tolerance to ERTRON

The use of Ertron in rheumatoid arthritis "has been characterized by almost complete absence of toxic effects, despite serum calcium concentrations sustained at high concentrations . . ."[3]

BIBLIOGRAPHY (1) Magnuson, P. B.; McElvenney, R. T., and Logan, E. E.: J. Michigan M. Soc. 46:71, 1947. (2) Snyder, R. G.; Squires, W. H.; Forster, J. W., and Rudd, E.: Indust. Med. 12:663, 1943. (3) Cohen, A., and Reinhold, J. G.: Indust. Med. 17:442, 1948.

Whittier LABORATORIES

Division Nutrition Research Laboratories • Chicago, Illinois

Modern MEDICINALS

Physicians will find that these brief resumes of essential information relative to the newer products are so prepared that they may be removed and pasted on standard 3x5" file cards, and filed as illustrated in the adjoining picture, for ready reference.

Dexedrine Sulfate Tablets and Benzedrine Sulfate Tablets

10-49

MANUFACTURER: Smith, Kline and French Laboratories, 1530 Spring Garden St., Philadelphia 1, Pa.

HOW SUPPLIED: Dexedrine Sulfate Tablets—dextro-amphetamine sulfate, now supplied as light orange, triangular tablets. The tablets have been changed in appearance only.

Benzedrine Sulfate Tablets—racemic amphetamine sulfate, now supplied as dusky pink, triangular tablets. The 10 mg. tablet is the same shape and color as the 5 mg. tablet, but slightly larger. The tablets have been changed in appearance only.

Aureomycin Troches

10-49

MANUFACTURER: Lederle Laboratories Division, American Cyanamid Co., Pearl River, N. Y.

INDICATIONS: In the treatment of oral bacterial infections.

ACTIVE CONSTITUENT: Aureomycin.

DOSAGE: To be dissolved in the mouth and to exert their action chiefly upon the mucous membrane of the mouth, oropharynx and upper respiratory tract.

HOW SUPPLIED: In bottles of 25 troches, 15 mg. each.

Ru-Nitral

10-49

MANUFACTURER: The Paul Plessner Company, Detroit 26, Michigan.

INDICATIONS: For reducing high blood pressure and concomitant vascular damage.

ACTIVE CONSTITUENTS: Each Ru-Nitral tablet contains: Mannitol hexanitrate, 32 mg. (1/2 gr.); rutin, 20 mg. (1/3 gr.); phenobarbital, 16 mg. (1/4 gr.). (Warning: May be habit forming.)

DOSAGE: As indicated.

HOW SUPPLIED: Scored tablets, bottles of 100.

Phlebaumanometer

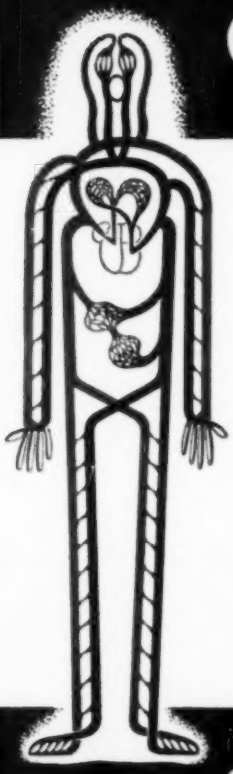
10-49

DESCRIPTION: A new gravity type instrument for determining the blood pressure in large and small veins accurately, quickly and without loss of blood. An anti-coagulant is drawn up into the needle and observation tube, and the needle is then inserted into the vein. A small gauge needle (No. 23-25) is used, permitting measurement of venous pressure in small as well as large veins. The pressure in the vein is balanced manually with the instrument and venous pressure in millimeters of water is read directly from the graduated scale.

MANUFACTURER: The W. A. Baum Co., New York, N. Y.

—Continued on page 42a

CALPURATE



OUTSTANDING IN THE TREATMENT OF CORONARY DISEASE

Calpurate is a definite chemical compound representing 43.5% theobromine in the form of theobromine calcium gluconate.

Absence of free alkaloid prevents gastric distress, obviates enteric coating and permits uninterrupted therapy.

May be co-administered with digitalis.

and

CALPURATE
With Phenobarbital

The addition of Phenobarbital ¼ gr. to Calpurate 7½ gr. aids in diminishing emotional tension and checking restlessness and the consequential expenditure of physical energy.

EACH SUPPLIED IN BOTTLES OF 100 TABLETS.

Maltbie
FOUNDED 1888

NEWARK 1, NEW JERSEY

Testosterone

10-49

MANUFACTURER: Wyeth, Inc., 1600 Arch St., Philadelphia 3, Pa.

INDICATIONS: In general, the principal indication for testosterone is primary testicular failure. Other indications are related to the secondary effects of androgens on other endocrine glands and accessory sex organs, or depend on the metabolic actions of the hormone.

ACTIVE CONSTITUENTS: Implantation Pellets Testosterone—Each pellet provides 75 mg. pure crystalline testosterone; Injection Testosterone—10, 25 mg. and 50 mg. per cc.; Membrettes Testosterone—Each *Membrette* provides 4 mg. pure crystalline testosterone.

DOSAGE: As indicated.

HOW SUPPLIED: Implantation Pellets Testosterone—Supplied in individual sterile vials; boxes of 1 and 3 vials. Injection Testosterone—Vials, 10 cc. multidose vials. Membrettes Testosterone—Bottles of 30 and 100 Membrettes.

Solufhricin Solution

10-49

MANUFACTURER: Sharp and Dohme, Inc., Philadelphia 1, Pa.

INDICATIONS: In the treatment of ulcers of the extremities, abscess of the skin and soft tissues, ophthalmic infections, and similar conditions.

ACTIVE CONSTITUENTS: 0.5 mg. of tyrothricin per cc. It is superior to other preparations of tyrothricin since it is ready for immediate use, sterile at the time of application, clear in appearance, and will remain stable at room temperature up to one year without precipitating or flocculating.

DOSAGE: May be applied by continuous or intermittent wet dressings, by drop, spray, or irrigation, and by instillation into cavities not connected directly with the blood stream. It is intended for topical application only.

HOW SUPPLIED: In 240 cc. bottles.

Aminosol

10-49

MANUFACTURER: Abbott Laboratories, North Chicago, Illinois.

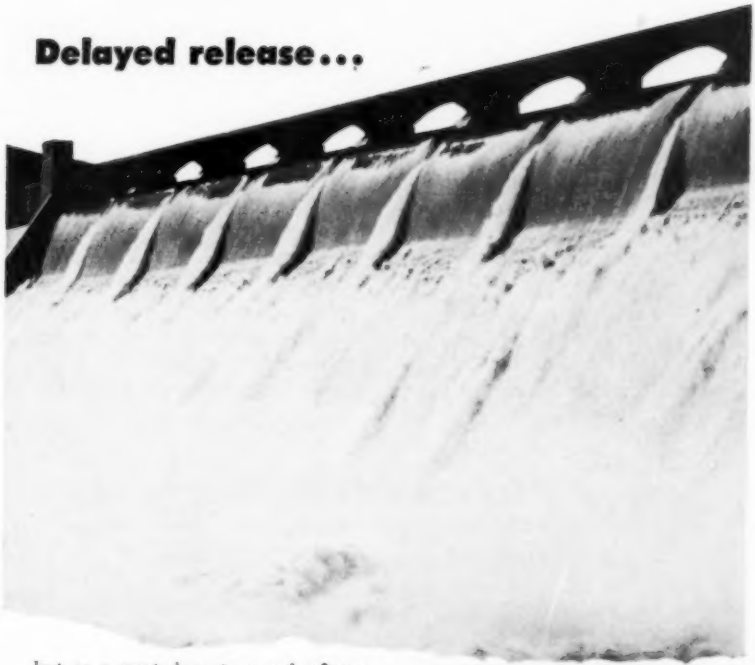
INDICATIONS: In a variety of medical and surgical conditions in which the protein of the body is being depleted or has been depleted without the possibility of restoring it by feeding.

ACTIVE CONSTITUENTS: These two new products supplement Abbott's first modified fibrin hydrolysate solution: Aminosol 5% w/v Dextrose U.S.P. 5% w/v Solution. Aminosol is a sterile, pyrogen-free hydrolysate for intravenous use. It is made by the partial acid hydrolysis of blood fibrin, and consists of a mixture of approximately two-thirds free amino acids and one-third small peptides. Each 1000 cc. Aminosol 5 per cent represents the equivalent of 50 gm. of protein.

DOSAGE: Twenty drops per minute should be administered for the first ten minutes, increasing gradually to 60 drops per minute within the next half hour if well tolerated. This rate will require from 3 to 4 hours for the administration of one liter. Excessively rapid rates of injection may produce nasuea, vomiting, venous thrombosis and fever.

HOW SUPPLIED: In sterile Abbott intravenous solution containers. Aminosol 5 per cent w/v Solution in 500-cc. and 1000-cc. quantities, and Aminosol 5 per cent w/v with Dextrose U.S.P. 5 per cent w/v and Sodium Chloride 0.3 per cent w/v Solution in 1000-cc. quantities.

Delayed release...



Just as a great dam stores and releases water only as fast as the fertile lands below can utilize it, so does Alhydrox* adsorb antigens and release them *slowly* from tissue after injection. This gives the effect of continuous small doses.

Alhydrox is a Cutter exclusive—developed and used by Cutter for its vaccines and toxoids. It supplements the physician's skill by producing these immunizing advantages:

1. *Alhydrox selectivity controls the absorption of antigens, reducing dosage volume while building a high antibody concentration.*
2. *Alhydrox, because of its favorable pH, lessens pain on injection and reduces side reactions to a minimum.*
3. *Alhydrox adsorbed antigens are released slowly from tissue, giving the effect of small repeated doses.*

* *Trade name for Aluminum Hydroxide Adsorbed*

Specify these Cutter ***Alhydrox*** *Vaccines:*

- **Pertussis Phase I Alhydrox**
  30,000 million H pertussis per cc.
- **Tetanus Toxoid Alhydrox**
- **Diphtheria Toxoid Alhydrox**
- **Diptessis Alhydrox**®
  Cutter Diphtheria Toxoid plus 30,000 million H pertussis per cc. for simultaneous immunization against pertussis and diphtheria
- **Diphtheria Toxoid-Tetanus Toxoid Alhydrox**
  For simultaneous immunization against diphtheria and tetanus
- **Dip-Part-Tet Alhydrox****
  Cutter diphtheria, pertussis, tetanus combined vaccine for simultaneous immunization against diphtheria, pertussis, tetanus

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Your Cutter dealer has ***Alhydrox*** *vaccines in stock*

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maintaining urinary antisepsis without distressing the patient

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Because MANDELAMINE therapy is exceptionally well tolerated, patients willingly adhere to the prescribed regimen.

DOSAGE: Adequate dosage is important; for maximum effect, adults should take 3 or 4 tablets t.i.d.; children in proportion.

Complete literature and samples sent to physicians on request.

6 *outstanding features*

- Has wide antibacterial range
- No supplementary acidification required (except when urea-splitting organisms occur)
- Little or no danger of drug-fastness
- Is exceptionally well tolerated
- Requires no dietary or fluid regulation
- Simplicity of regimen — 3 or 4 tablets t.i.d.

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Conclusions drawn by clinical investigators* suggest a wider use of the suppository.

Normal function without anxiety, fear, or devices —plus better patient-cooperation.

LYGENES instill complete confidence, provide a high degree of effectiveness. Non-toxic, esthetically acceptable, non-irritating, economical.

LYGENES Vaginal Suppositories—Clinically Proved Highly Effective. Small, non-odorous suppositories which form an adhesive, effective cervical barrier in a matter of minutes. No diaphragm or other devices required. Convenient. Facilitate patient-cooperation. Economical—in boxes of 12, foil-wrapped.

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Hydroxyquinoline Benzoate 0.30%
p-Chloro-symm.-m-dimethylhydroxybenzene 0.05%
p-tert. Amylhydroxybenzene 0.05%
Zinc Sulfocarbolate 0.50%
pH 4 (when dispersed in 4 parts normal saline)

*Eastman, N. J., Dept. of Obstetrics, Johns Hopkins University and Hospital, Baltimore; Seibels, R. E., Memorial Laboratory, Columbia, S. C.; J.A.M.A., 139:16-19 (Jan. 1) 1949.

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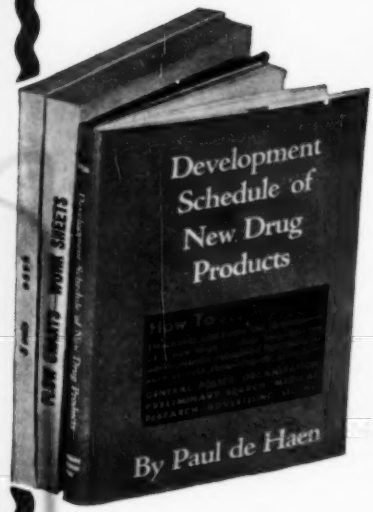

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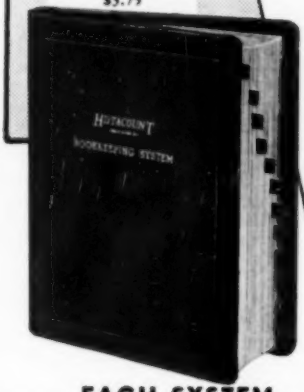

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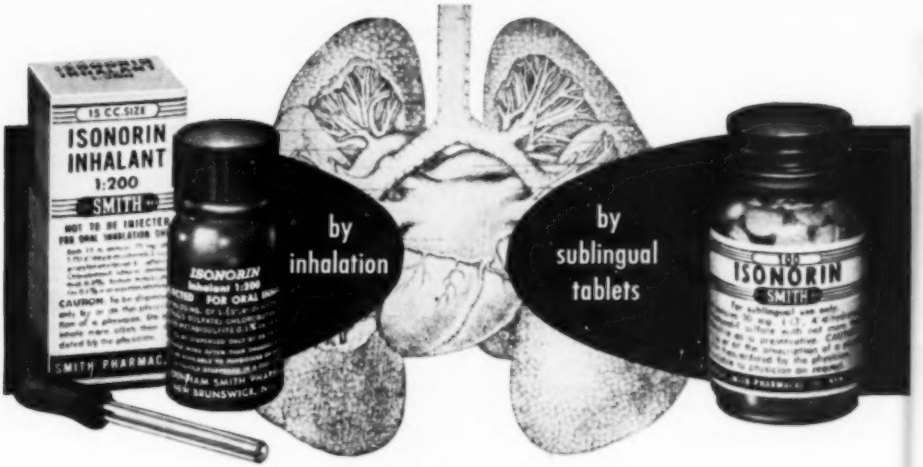

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Treating Tuberculosis on a National Scale

N. Lloyd Rusby

Fellow of the Royal College of Physicians (London); Physician to the London Chest Hospital; Assistant Physician at the London Hospital; Member of Britain's National Association for the Prevention of Tuberculosis

The fifth of July, 1948, the date on which Britain's National Health Service came into force, marked an important milestone in the already eventful history of the tuberculosis service of Britain.

The general hospital services of the country were then divided into 14 regions and, in so far as the hospitals that treated tuberculosis before still do so, there has been little recent change in the services provided. Each region forms a larger unit than many of the original local health authorities, which have now been incorporated, and one of the disadvantages of the old system—the inability of some of the small authorities to finance a fully adequate tuberculosis scheme—should disappear. The hospital accommodation included, even before the Act, in some parts of the country, such features as special sanatoria for children, institutions for the "combined case" where lung diseases could be fully treated in conjunction with disease in other systems of the body such as bones and joints, renal tract, glands of the neck; and maternity units either within sanatoria or working in close collaboration with them. The maternity units not only enable the mother to be properly treated before and after confinement, but also enable contact to be broken at once, thus safeguarding the health of the child. There is little doubt that these units have enabled many pregnancies to proceed satisfactorily to term which would otherwise have had to be prematurely ended. The chest hospitals, the thoracic surgical centers and the outpatient departments of general hospitals are integral parts of the regional scheme of treatment.

Prevention Of the Disease

The local health authorities in Britain are responsible for supervising prevention and after-care in their area. This means that they are concerned with the boarding out of contact children, the arrangements for open-air schools, the supply of garden shelters for domiciliary treatment, and priority for the tuberculous in housing. There are many who view with concern this division of function between the regional boards and the local authorities, but the division is not so absolute as might at first glance appear. The tuberculosis dispensary retains its pre-eminent position in the scheme, and its modern functions include the verification of the diagnosis and the arrangement of institutional treatment, the continuation of certain forms of treatment after discharge from hospital or sanatorium, the organization of after-care, the assessment of working capacity, and the supervision of the preventive measures already enumerated including the periodic examination of contacts and attention to the welfare of the family as a whole. Arrangements are now in preparation for making B.C.G. (bacillus Calmette-Guerin) vaccinations available to regional hospital boards for use under supervision.

It has already been suggested that the time and money spent on treatment are in danger of going to waste unless the life a man is forced to lead on discharge is one compatible with his reduced physical reserves; if it is not an early relapse is possible. Some patients can safely return to their former occupations; for others the

—Concluded on page 484

Minor Psychiatry from the Viewpoint of the Internist

George L. Carlisle, M.D.
Dallas, Texas

Mr. Chairman, Members of the Southern Psychiatric Association and Visitors:*

I am greatly honored by the invitation to address you. I accept with pleasure and humility. I sincerely hope that what I have to say will be entertaining and of some benefit to you. Everything I shall say is from my experience.

I began my work as a general practitioner but soon became properly classified as an internist which, of course, means general practice with a few exceptions. As an internist I have dealt with people just as you have. I am not interested in surgery or other mechanics, but in the individual and his problems regardless of what they may be.

I have watched many changes in medicine, and I have seen many specialties come and go. I believe there is more good being accomplished by psychiatry than by any other branch in medicine, and further, that what has been done is not a "drop in the bucket" to what is going to be done unless this world destroys itself before psychiatry can rescue it.

Psychiatry deals with the study of the cause and relief of abnormal behavior in human beings. Certainly this world is sick from abnormal behavior, and if it is ever put back on an even keel it will be through some type of reform brought by psychiatric teaching and not by politicians. As Dale Carnegie so truthfully said, "You can't make people be good. If you can make them want to be good, they will, but for no other reason."

* Address at annual meeting, December, 1948.

When I am consulted by a patient, the first thing I do is take his history. There is nothing startling about that, but I take the history myself and I talk with the patient until I am satisfied I have all the information of value I can get from the history. I have no set list of questions that I check. I let the patient talk and when he has finished, I ask questions or enlarge on various things until I am satisfied.

After taking the history to my satisfaction I attempt to make a diagnosis from the history alone. That is, a good history taken by an experienced clinician will bring to the examiner's mind one of several possible diagnoses. These I jot down at the end of the history. I have found this interesting and helpful. Interesting because it makes me think and helpful because it is astounding how thoroughly I want to become acquainted with the patient and his complaints before I am satisfied to the point I am willing to venture an opinion even to myself as to the probable diagnosis.

After the history is finished and I have made notations as to the probable diagnosis or classification I next make the physical examination. This I do by inspection, palpation, percussion and auscultation. The only instruments I use are flashlight, tongue blade, thermometer, stethoscope and sphygmomanometer, but I go over the patient, dictating to my nurse abnormal findings and impressions as I go. I do not waste time talking about things I don't find. That makes me think of what the little boy said, "Pins save many people's lives by them not swallowing

them." I do a pretty thorough examination, but I do more of a thoughtful examination, laying emphasis where facts brought out in the history direct.

After I have finished the physical examination I am in position to agree or disagree with my impressions as to the diagnosis obtained from the history.

After finishing the history and the physical examination, I turn my attention to laboratory examinations. In this connection I would emphasize the fact that I do only indicated laboratory work. I do not have, nor do I believe in, an extensive, expensive blanket laboratory survey. This practice is pernicious for two reasons: It is costly and it tends to make the physician less and less of a clinician.

There are a few routine things I do, viz., urinalysis, hemoglobin, and blood Wassermann. Other laboratory studies such as x-ray, blood chemistry, and many other things I do only when my findings from history or physical examination indicate to me they should be done. I am certain I overlook things at times which I might catch with a large minimum laboratory procedure, but one must be practical and not expect to be perfect. I think without exaggeration I can say I find the true diagnosis in ninety-five percent of the cases I examine. As I have emphasized for years, the most important point in a physical examination is the history. I have told medical students for many years, "The patient is trying to tell you what the trouble is; just have the patience to listen and the ability to interpret."

After having completed the physical study I can say without hesitation that I have been unable to find any physical disease which would explain the patient's complaints in seventy-five percent of cases. Here is where the great fault lies with the average doctor. He listens to the patient's complaints, completes his physical study and if he doesn't find some physical change to explain the patient's symptoms he tells the inevitable falsehood, "There is nothing the matter with you." Every single time a physician tells a patient that, the physician is incorrect because if there weren't something wrong the patient would not have consulted the doctor. In each instance where such a thing is told to a patient suffering from a psychoneurosis the patient is made worse. A feeling of inferiority is part of every nervous patient's complaints and to make one of them feel inadequate and foolish by saying there is nothing wrong is a grievous sin of which many doctors are guilty.

After I am satisfied that no physical disease is present to explain my patient's discomfort I begin talking about the patient's personal life. I often break the ice by asking the blanket question, "Are you happy or unhappy?" It is surprising how often that question will bring out valuable information regarding the patient's state of mind.

Sometimes I can, by tactful, friendly questioning, bring out the real cause or causes of the patient's tension, but often it is more or less of a blind situation to the patient because he knows nothing about psychosomatic things. I go into much detail in many instances because I know of no other way to get to the bottom of the situation with any reasonable chance of attaining a more or less permanent restoration of emotional health.

I often ask the patient to tell me his definition of disease. When asked if he knows the meaning of the word "disease" there is, as a rule, no response except a puzzled look. I then suggest that we spell the word slowly—dis-ease. I then wait and very soon there is the recognition of the fact which even too many doctors fail to realize, that disease means simply lack of or absence of ease and further that these patients, like all others, are suffering from disease.

After this first question I ask the next question, "What is a doctor?" Again there is a puzzled look and I explain that a doctor is just another human being, in all respects just like the patient except that a doctor has had more or less special training. I emphasize that there is nothing queer or strange about a doctor.

After this is accepted by the patient, I ask the third question, "What is the practice of medicine?" Again there is silence and I request strict attention while I ex-

plain. "The practice of medicine consists of a careful search on the part of a trained individual, the doctor, to find the cause of a person's dis-ease and after the cause has been found the application of whatever is best to remove the cause." I add quickly, "In every instance where this is truly done, the patient gets well!"

I now tell these patients that I know they feel every single thing of which they complain. I next tell them they know nothing about the matter and the same thing is true of their relatives and neighbors. I insist that they assume this attitude and they must take my word for things and do what I tell them to do through blind faith.

I explain to them that every organ in the body, every single one, has a function to perform and unless every organ is performing its function properly there will be, in most instances, some degree of discomfort. I then point out the fact that unless an individual is free from nervous tension the organs of the body will not function normally. Also if tension continues in sufficient degree and for a long enough time the sufferer always begins to have physical discomfort such as headache, dizzy spells, palpitation of the heart, etc., as a direct result of this long continued nervous tension.

During my conversation I may or may not have found some facts which could account for the patient's unhappy frame of mind. If I did, it makes it more simple, of course, but in a great many cases I have not found the cause. I feel fortunate if I can get these patients to admit to themselves that this whole thing might be true and could have something to do with the cause of their dis-ease.

I now prescribe book number one explaining that there are many things about living, or rather, successful living, they must learn and that I do not have the time to do it individually. I have them buy the book, *Outwitting Our Nerves,* by Josephine A. Jackson and Helen M. Salisbury. I explain that this book was addressed to the patient and that both authors are specialists (that magic word) on nervous diseases. I tell the patients I want them to study the book until they feel they could make a grade of ninety-five on a written examination on the contents of the book, then come back to see me.

In the vast majority of instances the patient returns in a better frame of mind and with much more insight. We have another conference. At this visit the patients usually take the initiative, asking questions and enlarging on thoughts which develop in the conversation. In most instances my patients are now ready for book number two in their course of education. The second book I prescribe is *Managing Your Mind,* by S. H. Kraines and E. S. Thetford. My instructions regarding this book are similar to what they received in the case of book number one; that is, to study it until they could make ninety on a written examination regarding the contents of this book. This is quite an order regarding either one of the books, but they are both books that the person of average mental capacity and education can understand; and the average neurotic, as you know, is a person with a good mind. I don't recall having seen a really nervous patient who was of a dull type.

Managing Your Mind takes longer to read and understand, but it will convince the average person that emotional misbehavior brings on more emotional misbehavior, and further, there are enough cases presented to prove this conclusively. One other thing of value is, I have never had a patient who didn't find any number of cases cited whose symptoms were identical with those from which he suffered. This is a great help because I have tried to sell the patient that the authors of both books were authorities and, besides that, truthful.

Varying lengths of time elapse between visits after the patients begin this reading, but after the second book many patients feel they are well and say so. I never let one stop, though, until he has "graduated." I don't think they can get too much good psychotherapy and I know they will relapse if the job is half done. In other words, when they come to see me "they ask for it and I give it to them."

After there is sufficient discussion again

following the second book, I prescribe book number three, which is *Peace of Mind* by Liebman, God rest his soul. This book was presented to me by a psychiatrist, my friend Dr. Arthur J. Schwenkenberg, and I found it not only interesting and helpful to me personally, but most valuable as an adjunct in my course of psychotherapy for nervous patients. This book is an admirable work on pointing out the most valuable thing in life, peace of mind, and is certainly written in an easy, convincing manner. I have never had a neurotic who failed to enjoy it and receive much benefit and education from reading it.

Usually after reading *Peace of Mind* as the third book many of my patients have arrived at a relaxed, happier frame of mind than they have ever known as far back as they can remember. I am very glad of that and so tell them, but I take no chances. I know from experience that through the next several months the average nervous patient will have many misgivings and, too, it is perfectly human to need occasional renewal of whatever faith we live by.

To serve this purpose I insist that the patient subscribe to the monthly magazine, "Your Life." I tell them that every article in it is prepared by a specialist (again the magic word) and in most instances all contributors are experts in happy living and its achievement. Besides, these men are journalists, which is more than one can say for most practicing physicians.

My final instructions are to come to see me any time anything bothers them which they can't get rid of in a few days.

In my out-of-town cases, of which there is a high percentage—more than fifty, I handle the entire thing by correspondence. After reading each book they are to write and we keep corresponding until the patient is ready for the next step. This method works about as well as seeing the patient personally. I impress on the out-of-town ones to write just as long a letter as they want, and I am careful to answer every question in detail. It takes time, but I thoroughly enjoy it and in no other condition do I get so satisfactory results in such a good percentage of patients as in the cases of so-called neurotics.

I use various methods of combatting arguments. I remember one woman who continued writing more or less in the same vein regardless of what I said in my replies. One day just before the Christmas season I received a short, whining letter—same stuff. I sent her the following telegram, "For Heaven's sake stop crying until after the Holidays and then when you start again sing some other chorus." I heard nothing for several months; she then came to see me and admitted the telegram impressed and embarrassed her so she was completely shocked out of any more desire to complain about herself.

One of my most effective tricks in helping quickly the agitated cardiac neurotic is as follows: They all like to take medicine and who can blame them; they hope it will help. After my first examination and conference with the patients who are in panic about their hard beating hearts I tell them I am going to give them a prescription for some medicine. Further, this medicine is guaranteed to help them and they can take it any time, night or day, in any number of doses, but I exact one promise, that they won't show it to, nor give it to, anyone else. I then turn and write out the prescription with my back to the patient, fold it and hand it to him. They open it immediately and it is really thrilling to watch the expression on the faces of most of them. What they read is this statement signed by me, "I guarantee to you that you have no heart disease of any description and you are not in the slightest danger of dying of heart trouble." I have had them come back twenty years later and show me a worn, yellowed piece of paper which they have read many times, but, Gentlemen, it works. I had a doctor friend ask me what I would do if one of these patients were to drop dead with a signed statement like that in his pocket. I told the doctor I felt I could stand it all right, but I would probably say that he didn't have the heart trouble at the time I examined him!

1308 Medical Arts Building

SPECIAL ARTICLE

Infertility and Fertility

(Concluded from last month)

This summarization attempts to cover the essential therapeutic information on the subject and is designed as a time-saving refresher for the busy practitioner.

Reprints available*

Female Infertility

The causes for female infertility are numerous and include the following: tubal and ovarian pathology, genital abnormalities, general systemic diseases, nutritional deficiencies, nervous shock, anxiety, mental disease, thyroid dysfunction, diabetes and various endocrine disorders.[4] A study of a number of female patients during the two world wars revealed that infertility was caused by the shock, strain and anxiety experienced during this period.[35]

There are various opinions as to how long a period should elapse without conception taking place before a married couple, desiring children, should seek medical advice. In a group of planned pregnancies three fifths occurred within 3 months and more than nine tenths within a year from the time contraceptive measures were abandoned. This fact is considered significant and on this basis the authors recommend that failure of a woman to conceive within one year should indicate that there is something wrong rather than waiting for 2 or 3 years as some physicians advise.[35a]

Vaginal Examination

Assuming that the husband and wife are normally healthy and that the semen of the husband is normal the wife should be given a thorough examination. It is possible that intromission may not be taking place. This has been found to occur in many cases and the affected mate in approximately 25 per cent of the cases may be ignorant of it or secretive about it. The normal erect penis is approximately 4 cm. in diameter and it may be impossible for it to be inserted properly. This can be ascertained by visual and digital examination. Insertion of a lubricated glass vaginal plug of the size of the penis is also useful to determine whether coitus is complete. Although it may cause sexual excitement and relax the entrance to a slight extent, if the insertion is painful it is likely that intromission is not being completed during coitus. This may be due to vaginal septa, inflammation, dyspareunia, to psychogenic resistance or to ineptitude or overkindliness on the part of the husband. It is possible for conception to occur when normal semen is placed at the entrance but it is not probable since the favorable mucus usually does not extend from the cervix down through the normal vagina. Examination of the vagina may reveal some anatomic derangement which may prevent intromission. Hyperemia of the wall of the vagina also may be a factor. A smear of the secretion may reveal the presence of pus or trichomonas organisms or possibly both. A culture of the secretion on Sabouraud's medium may be necessary to determine whether there is *Monilia albicans* present. Vaginal inflammation may play a role in infertility in that it may prevent intromission. However,

* From the Editorial Research Department of the MEDICAL TIMES, 67 Wall Street, New York 5, N. Y. Permanent library binders, sufficient to hold 24 different "refresher" reprints, sent postpaid, $2.50.

in some cases if cervical insemination can be accomplished, conception usually can be achieved. If the inflammation involves the cervix the resultant endocervicitis may block insemination. Some types of vaginal inflammation alter the pH of the vagina and may cause destruction of the spermatozoa. Painful or difficult coitus may result from such inflammation or from an obstruction of the vagina but it also may be entirely psychogenic. If examination reveals no disturbing factors careful questioning will reveal the background for this.

Therapy

Where a vaginal obstruction exists, proper steps should be taken to remedy the condition. Some cases may respond to dilation and the patient may be instructed to use, 2 or 3 times a day, glass vaginal forms, gradually increasing the size until the vagina is dilated sufficiently. The inept or overkindly husband may require instruction. As a last resort it may be necessary to employ surgery.

Although it is not at all certain that vaginal infection precludes pregnancy the patient who is being treated for infertility should have any existing infection first cleared up before taking further steps. The following discussion concerning the treatment of bacterial, protozoal and fungus infections is therefore presented.

A. Trichomonicides

If the etiologic organism is *Trichomonas vaginalis* one of the following may be employed: (a) Acetarsone, available in powder form, is administered by insufflation in the strength of 12.5 per cent incorporated with 87.5 per cent of equal parts of kaolin and sodium bicarbonate. The dosage given is 4 Gm. of the mixture every second or third day. Three or 4 such doses are usually sufficient. (2) Acetarsone is also available as a tampon tablet with 0.1 Gm. of powered acetarsone coating the tampon to which is attached a tablet containing 32 mg. of acetarsone in a base of lactose, dextrose, boric acid and starch with sodium bicarbonate and tartaric acid as disintegrators. This tampon tablet is inserted every other day or daily and after 3 treatments or a week of treatments a mildly acid douche is used. (3) An acid vaginal jelly containing acetic acid, ricinoleic acid, oxyquinoline sulfate and glycerine in a vegetable gum base is buffered to a pH of 4. It is administered by means of a measured-dose applicator and is also used in other vaginal infections causing leukorrhea as well. (4) Phenarsone sulfoxylate destroys *Trichomonas vaginalis* immediately in a 1:10 aqueous solution and in approximately one minute in 1:25 concentration. After the vaginal mucosa and external os have been washed with tincture of green soap, dried and painted with an antiseptic solution the cervical canal, urethra and para-urethral folds are swabbed for several minutes with the solution and then sprayed with a powder composed of phenarsone sulfoxylate 0.5 Gm and kaolin 2.5 Gm. This is repeated for 3 consecutive days and if necessary 3 additional treatments may be given at 3-day intervals. Suppositories containing 0.13 Gm. of the drug in a glycerogelatin base may be used every second night in the intervals between the treatments. (5) A powder containing mild silver protein 20 per cent, kaolin 40 per cent and lactose 40 per cent may be administered by insufflation. After insertion of the speculum the tip of the insufflator is directed into the fornices and the powder blown in gently. This may be repeated weekly for 3 weeks. Capsules containing 2 Gm. may be inserted by the patient each night. Measures also should be taken to prevent recurrence of the condition. (6) A powder containing phenol 2 per cent, oxyquinoline benzoate 0.01 per cent, menthol 1 per cent, eucalyptol 1 per cent, methyl salicylate 1 per cent, thymol 0.04 per cent, ammonium alum 16.6 per cent, and boric acid 78 per cent has a pH of 3.8. It is given as a douche before retiring. This product also is used in prophylaxis of cervicitis and vaginitis and in addition it may be used in yeast infections as well as in those caused by *T. vaginalis*. (7) Vaginal tablets containing a viable culture of *Lactobacillus bulgaricus* and nutrient media are inserted daily for 4 to 6 days after the vagina has

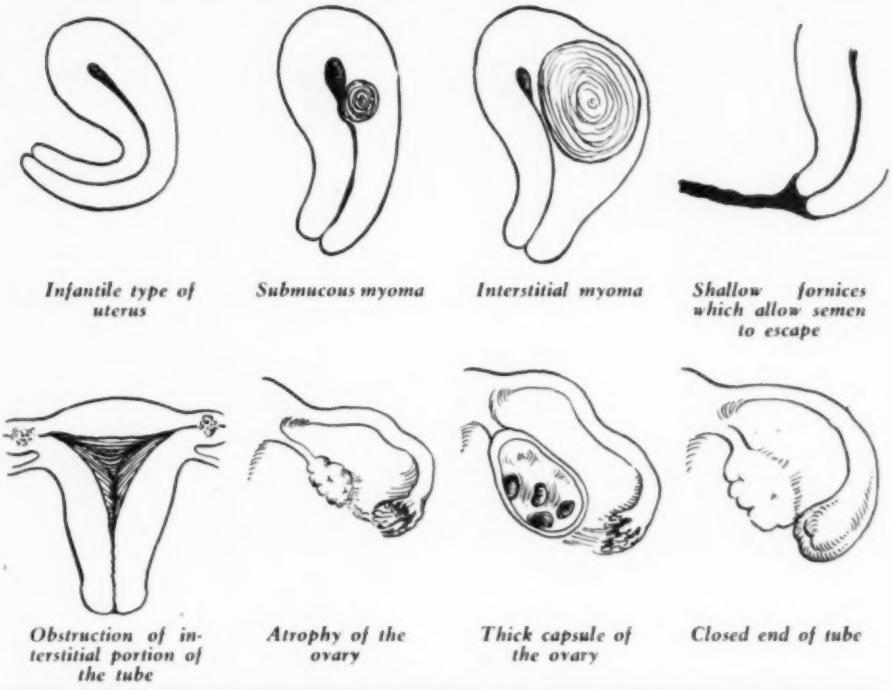

Fig. 4. Diagrammatic representation of some of the various causes of sterility in the female.

been dried with cotton. Two tablets are inserted in the posterior fornix behind the cervix. A nonabsorbent cotton tampon is then used to plug the vaginal entrance. Further therapy by the patient should consist of use of 1 tablet each night for 3 to 6 weeks upon retiring. The culture develops in the vagina and produces lactic acid. (8) Carbarsone 0.13 Gm. in a 3.24 Gm. suppository with a glycerogelatin base is given nightly for 2 weeks with a weekly douche of sodium bicarbonate solution. (9) Cetylpyridinium chloride is available as a powder for insufflation in concentration of 0.5 per cent in boric acid, kaolin and lactose for which the dosage is 5 Gm. every 3 to 5 days or more often if required. This should be combined with the use of 8 Gm. suppositories containing 8 mg. in a glycerogelatin base and douches of a 1:1000 aqueous solution. It is used also in treating *Monilia* and non-specific vaginal infections. (10) After thorough cleansing with a douche of 0.5 per cent sodium perborate solution a tablet containing 0.25 Gm. of acetylaminohydroxyphenyl arsonic acid and a small quantity of boric acid may be inserted into the anterior and one into the posterior fornix as high as possible once or twice a day. In severe infections it may be necessary to increase this to 4 or 5 daily. This is also available in powder form (1.25 Gm. contains 0.25 Gm. of the arsenical) and may be administered by insufflation alone or in conjunction with the tablets. (11) A vaginal tablet containing 100 mg. of diiodohydroxyquinoline combined with lactose, anhydrous dextrose and boric acid may be used also. One or 2 moistened tablets

should be inserted as above both night and morning. This too is available in powder form (2.15 Gm. in 1 oz. of powder) and is given by insufflation in 1 to 2 drachm doses as indicated. (12) A 1:24,000 concentration of phenyl mercuric nitrate in 5 per cent pectin jelly with a pH of 3.2 is applied intravaginally twice a day for 2 to 3 weeks. As a prophylactic it is used once a day during the menstrual period and repeated during several such periods. This product also may be used in cases of mixed vaginitis and as a deodorant, antipruritic and granulation stimulant after the cervix has been cauterized or conized. (13) A concentrated solution containing copper sulfate, boric acid, borax and phenol is diluted 1 to 2 tablespoonfuls to a quart of lukewarm water and used as a douche each day, preferably before retiring. This solution is mildly antiseptic and deodorant and has both trichomonocidal and fungicidal properties. It is indicated in leukorrhea due to simple catarrhal endocervicitis, *Trichomonas vaginalis* vaginitis, *Monilia albicans* vaginitis and endometritis. (14) Another jelly made of a gum base which is available contains 0.02 per cent of phenylmercuric acetate, 1 per cent of boric acid and the pH is adjusted with acetic acid to 4.0. It is administered by means of a measured dose applicator. (15) Silver picrate is available in crystalline form for the preparation of 1 to 2 per cent solutions or suppositories and in 1 per cent concentration in kaolin for insufflation. It is used in treating *Trichomonas vaginalis* vaginitis and *Monilia albicans* vaginitis. (16) Vaginal tablets containing oxyquinoline lactate, colloidal kaolin and dextrose in an effervescent base are used not only in *Trichomonas* infections but also in other forms of vaginitis. One or 2 tablets are inserted into the vagina before retiring. (17) Vaginal tablets containing betalactose 0.972 Gm., boric acid 0.324 Gm., lactic acid 0.031 cc. and oxyquinoline sulfate 0.016 Gm. are used to restore and maintain the normal acid condition of the vaginal secretions and to combat *Trichomonas* and pyogenic bacteria. Two or 3 are inserted high in the vagina after a douche of 1 teaspoonful of lactic acid or 3 tablespoonfuls of white vinegar to 2 quarts of water before retiring. The douche is repeated in the morning. (18) A vaginal powder containing sodium thiosulfate, thymol, oxyquinoline sulfate and oil of wormwood in a bland base of boric acid, starch, magnesium carbonate and butyl parahydroxybenzoate as a preservative is given by insufflation in doses of 6 to 10 Gm. every other day for 2 or 3 treatments along with one vaginal insert, containing the same drugs, at night before retiring. (19) Iodochlorohydroxyquinoline also is available in the form of a vaginal insert containing 0.25 Gm. of the active ingredient, 25 mg. of lactic acid and 0.1 Gm. of boric acid and in insufflate form containing 25 per cent of the active ingredient, 10 per cent of boric acid, 20 per cent of zinc stearate, 42.5 per cent of lactose and 2.5 per cent of lactic acid. The insufflate in dosage of 2.5 Gm. is used initially and then the inserts are used nightly for 1 to 2 weeks. (20) Another powder given by insufflation is a combination of bismuth formic iodide, zinc phenolsulfonate, bismuth subgallate, mono-n-amyl hydroquinone ether, potassium alum, boric acid, magnesium carbonate, menthol, eucalyptol, thymol and inert ingredients. (21) A cream containing sulfanilamide 15 per cent, 9-aminoacridine 0.2 per cent and allantoin 2 per cent is used specifically in trichomoniasis but is also effective in moniliasis. It is applied topically twice daily, one upon arising and the other before retiring. The usual precautions concerning topical sulfonamide preparations should be observed. (22) A suppository containing 20 minims of a solution of triolein ozonide in olive oil is also available.

With many of these trichomonicidal preparations, therapy should be continued throughout one menstrual cycle and for the first 10 days of each of the 3 following cycles even though symptoms may be absent. If, after the course of treatment, the infection is still present, the husband's prostatic fluid, semen and urinary sediment should be examined microscopically for the presence of the organism.[16]

B. Fungicides

If the infection is due to *Monilia albicans* and therefore fungal in nature some of the aforementioned products also may be used or one of the following may be necessary: (1) Paint the vagina on alternate days for 1 week with a solution of 1 Gm. of gentian violet, 2 cc. of alcohol and sufficient water to make 20 cc. If this is ineffective a jelly composed of calcium propionate 9.5 per cent, sodium propionate 9.5 per cent and propionic acid 1 per cent may be used.[16] After a water douche initially, approximately 6 cc. of the jelly are introduced into the vagina and a small quantity applied to the external genitalia morning and evening for 3 weeks. This therapy is frequently given without the first painting as described. (2) Another product available for this purpose consists of a disposable paper applicator with one dose containing ¼ oz. of sterile jelly in which is incorporated 0.2 per cent gentian violet, 3 per cent lactic acid and 1 per cent of acetic acid in a water-soluble base of polyethylene glycol. This is applied once a day. It is also used in pruritus vulvae, urethritis and related conditions. (3) Sodium ethyl mercuri thiosalicylate in 1:30,000 to 1:5000 aqueous solutions and in 1:1000 concentration in suppositories may be used in such conditions also. (4) A solution of phenylmercuric nitrate 1:1000 is available to be used as a douche when diluted 1:20 with water.

C. Vaginal Antiseptics

Inflammation of the vagina due to bacterial organisms may be treated by using a douche of 0.5 per cent boric acid or sodium perborate in water. Two quarts of one of these should be used twice a day. One or two penicillin suppositories containing 100,000 units may be used once or twice daily. Suppositories containing 200,000 units may be used twice a day for approximately a week.

There are available also other preparations which are useful for their antiseptic, deodorant and in some instances analgesic properties. They may be used in treating inflammatory conditions of the vaginal tract and as well as prophylactic agents in preventing recurrences of the infections. Included in this group are the following: (1) 4-methyl-1-tertiary-amyl-phenol 0.0044 per cent and oxyquinoline sulfate 0.06 per cent in a base of gum tragacanth, glycerin and gum karaya is applied once or twice a day in inflammatory conditions of the vaginal tract. (2) As a prophylactic and antiseptic a jelly containing oxyquinoline sulfate, lactic acid and boric acid in a buffered starch-glycerite vegetable gum base may be used when necessary. (3) Vaginal suppositories containing oxyquinoline sulfate, boric acid, and salicylic acid in a cacao butter base are used intravaginally before retiring as an antiseptic, deodorizer and prophylactic. (4) Boric acid, zinc sulfate, salicylic acid, phenol, menthol, thymol and eucalyptol incorporated into a powder base are used as a deodorant and antiseptic in saturated solution as a douche. For cleansing 2 teaspoonfuls are used in 1 qt. of water. (5) A non-greasy water-soluble base containing lactic acid, boric acid and oxyquinoline sulfate may be used to maintain the normal acid reaction of the vaginal secretions. (6) Ammonium ichthosulfonate (ichthammol) 10 per cent in suppository form is used in treating certain leukorrheas as an antiseptic.

D. Sulfonamide Preparations

There also are available for treating certain vaginal infections due to organisms of the genus streptococcus or staphylococcus the following sulfonamide preparations: (1) Sulfathiazole 0.3 Gm. and betalactose 1 Gm. in a vaginal tablet; (2) Effervescent tablets containing sulfathiazole 0.5 Gm. which may be used as a douche after effervescence has subsided in the solution; (3) Vaginal tablets containing sulfathiazole 0.324 Gm. and beta lactose 1 Gm. which as does No. 1 restores normal acid vaginal pH in gonorrheal vaginitis and mixed vaginal infections involving staphylococci, colon bacilli and other sulfathiazole-susceptible organisms (1 tablet in the anterior and 1 in the posterior fornix morning and night); (4) A water soluble

cream containing sulfathiazole, N'acetylsulfanilamide, N'benzoylsulfanilamide and urea peroxide used in postoperative vaginitis or cervicitis, ulcerative vaginitis and related gynecological conditions (5 cc. dose morning and night) because it acts bacteriostatically and bactericidally at 3 different pH levels; and (5) A vaginal jelly with a pH of 4.0 containing sulfathiazole 10 per cent, lactic acid 3 per cent and acetic acid 1 per cent used in vaginal and cervical infections.

E. Precautions

In the administration of the silver compounds, the arsenicals or the sulfonamides, the usual precautions should be observed because of the possibility of untoward reactions from prolonged usage or because of sensitivity.

F. Vaginal Cleansers

In addition to these more powerful preparations there are available also a number of products which may be mildly astringent and antiseptic and are of use in simple vaginal cleansing such as the following: (1) Boric acid 27 Gm., phenol 0.324 Gm., ammonium alum 0.324 Gm., eucalyptus oil 0.13 Gm., methyl salicylate 0.13 Gm., menthol 0.065 Gm., and thymol 0.032 Gm. in powder form are used as a douche in concentration of 1 teaspoonful to 1 qt. of warm water. (2) Another powder contains boric acid 70 per cent, alum 23 per cent, phenol 2 per cent with eucalyptus oil, methyl salicylate, thymol and menthol of which 2 teaspoonfuls are used in 1 qt. of warm water. (3) As a douche one tablespoonful of a powder containing oxyquinoline sulfate 2 per cent, boric acid 5 per cent, sodium chloride 5 per cent and dried magnesium sulfate 88 per cent is dissolved in 1 qt. of warm water. (4) A powder containing alum 14 per cent, dried magnesium sulfate 28 per cent, boric acid 57 per cent, oxyquinoline sulfate 0.08 per cent and crystal violet 0.014 per cent is a vaginal antiseptic and deodorant. (5) For restoration of the normal acidity a powder containing chlorthymol, menthol, lactose, methyl salicylate, oil of cassia and lactic acid with a suitable diluent may be used. One tablespoonful is dissolved in 1 qt. of water. (6) For maintenance of the acid pH which is optimal for growth of normal lactobacillary flora of the vaginal tract a powder containing oxyquinoline sulfate 0.0227 per cent and 4-methyl-1-tertiary-amyl-phenol 0.0014 per cent, urea and buffer salts is useful for cleansing and deodorizing in vaginitis, acute cervicitis, trichomonal infections and leukorrhea. Each dose contains the quantity described and it is dissolved in 2 qt. of warm water. (7) One tablespoonful of a powder containing thymol, sodium chloride and sodium bicarbonate to 2 qt. of water is used as a cleansing douche. (8) A vaginal douche to be used as an adjuvant in treating the various infections is still another powder containing boric acid, ammonium alum, berberine sulfate, phenol, menthol, thymol, eucalyptol and aromatics. One teaspoonful to a pint of warm or hot water is used.

G. Coagulant

In examining or treating the patient it may be necessary to coagulate the mucus in the vaginal wall, cervix, fornices and external os. For this purpose ½ oz. of a lotion containing kaolin, aluminum hydroxide gel, eucalyptol, menthol and thymol may be added to 8 oz. of lukewarm water and used as a douche followed by thorough flushing. If desired it may be used undiluted with a sponge or swab.

In treating any of the infections of the vaginal tract it is important, of course, that the pH be restored to the normal since the invading organisms cannot grow in the normal pH. For this purpose many of the above described products are helpful.

H. Psychotherapy

If the dyspareunia is psychogenic in origin the general practitioner can often solve the problem by discussing the situation with the wife alone or with the husband and wife as is indicated. Some cases are based on such deep-seated emotional conflicts that only a trained psychiatrist may be able to help. Still others may prove to be due to actual revulsion and hatred

on the part of the wife for her husband which may be irremediable.

I. Aid to Conception

If no organic abnormality and no psychogenic factors are found to be the cause for failure of conception there is available a vaginal douche powder which is designed to aid the survival and migration of the spermatozoa after they have been inseminated. This powder contains glucose, potassium chloride, sodium chloride and calcium gluconate which, when dissolved in water, provides glucose in a modified Ringer's solution. This solution counteracts hostile genital secretions and supplies the metabolic stimulus necessary for the motility of the spermatozoa. It is used as a precoital douche.

Cervical Insemination

In the discussion of infertility of the male there was considered the possibility that the spermatozoa were not properly deposited in the cervical canal. If this is not the case there is another factor at this site which plays an important role also. The cervical secretion may be antagonistic to the spermatozoa. Any one or a combination of these factors is believed to be responsible for approximately 25 per cent of sterility cases. Although these factors are important their determination should follow a semen examination rather than precede it.[5]

The technic for obtaining these secretions for study is the same as described for the postcoital examination. If there is pus in the cervical mucus at ovulation time it is indicative of endocervicitis and possibly endometritis. At times other than the ovulation period there normally may be large numbers of leukocytes present. Another factor may be that the secretion is either insufficient or excessive. When the os is so small that a standard smooth forceps cannot be inserted it is possible that there is not enough contact between the secretion and the semen before the vaginal secretions destroy the sperm. This is rarely the case, however. In patients where the os is large and the mucus secretion excessive in the portio the sperm may be too widely scattered and not enter the canal in adequate numbers.

Digital examination of the cervix should be made to determine the distance between the cervix and the symphysis. If this is less than 4 cm. it is possible that proper insemination cannot be accomplished because the penis is not adapted to the cervix.

A. Sims-Huhner Test

The Sims-Huhner test is advocated for determining the so-called errors of cervical insemination. The test should be performed at ovulation time when the cervical mucus is most easily penetrated by the spermatozoa.[36] This period of ease of penetration occurs during the midportion of the cycle at the same time that the basal body temperature curve takes the ovulatory dip. Studies of the cervical mucus at this time have shown it to be present in greatest quantity and to be lowest in viscosity and cellularity. There is considerable glycogen present at this time also.[5, 37-39]

In order to avoid any psychogenic disturbances it is preferable to recommend that the couple choose a day close to the ovulation time after they have remained continent for 2 days. Douching and bathing should be avoided and the wife should report to the physician no later than 5 hours after coitus. A dry, nonlubricated bivalve speculum should be used to expose the cervix. The vaginal pool and the cervical canal are aspirated with separate dry, sterile pipettes. The specimens are placed on glass slides, covered with a cover-slip and examined under high power.

In this test the number of actively motile spermatozoa which should be found in the cervical mucus is taken as approximately 15 and there should be numerous nonmotile spermatozoa in the vaginal secretion. If this is not the case the test should be repeated. Faulty coital technic is considered responsible if no spermatozoa are found in either secretion after several tests. If the cervical mucus contains nonmotile spermatozoa the secretion is considered antagonistic. This may be due to chronic cervicitis due to inflammation or in some cases to an ovarian deficiency. As stated previously a large number of leuko-

cytes is indicative of endocervicitis. If no spermatozoa are found in the cervical mucus but are found in the vaginal secretion one of the following may be responsible: a cervical polyp, a viscid endocervical plug, or an anterior position of the cervix. It is also possible that favorable cervical mucus is not present at the time of the test due to the wrong day of the cycle having been selected.[5]

Therapy

Some have expressed the opinion that superficial cauterization and topical medication are of no value in endocervicitis. It is recommended that the sulfonamides and penicillin in the doses considered effective for other infections be given for 10 days at the beginning of several successive cycles. If this is not effective and the condition is severe conization done carefully and conservatively on the external one-half of the cervical canal may be necessary. Antibiotic therapy also should be used. Proper conization also may be necessary to decrease excessive secretion of mucus. However, it is important that not too much of this tissue be removed since it may result in a relatively dry cervix and the spermatozoa would be unable to reach the cervical canal.

If the secretion is insufficient administration of estrogens may be of value. However, the daily dosage should not exceed 0.25 mg. of diethylstilbestrol or 0.025 mg. of ethinyl estradiol so that ovulation will not be suppressed. If dilation of the external os repeatedly after several menstrual cycles is not effective it may be helpful to divide the portio posteriorly although this operation is considered somewhat obsolete.

In those patients in whom digital examination may reveal that the cervix is located superior to the symphysis and the penis simply passes by, the condition may be relieved by manual manipulation and use of a pessary to adjust the fundus to an anterior orthoposition so that the cervix would then be moved backward. If this does not relieve the situation it may be necessary to use surgery although this should not be undertaken until all the other possibilities and changes in coital technic have been exhausted. The change in technic of coitus may remedy the situation. Intracrural coitus, in which only the head of the penis is inserted, may be successful. After insertion the husband should place his thighs lateral to his wife's and also delay the withdrawal. This technic should be attempted at several successive ovulation times and checked postcoitally by examination, before surgery is employed.[16]

Gross Pelvic Conditions

It is important that the woman be given a thorough gynecologic examination which may reveal certain gross pelvic abnormalities which warrant further investigation and therapy before tests for fertility are continued. Many of these conditions may be the result of inflammation but in some cases there may be congenital and developmental abnormalities, or fibroids or other tumors which are not inflammatory or developmental.

Infertility in women may be caused by gonococcic or pyogenic inflammatory disease which may cause an occlusion of the tubes and chronic endocervicitis. Such conditions are not generally palpable upon gross examination but may be revealed by other methods such as the history, type of period and pain and the like.

Tuberculosis of the female genital organs is something which must be taken into account. One worker has reported an incidence of 0.6 per cent in sterility cases.[16] Bimanual palpation will not always reveal this condition. However, if the patient reveals a history of pleurisy or any pulmonary or general tuberculosis, cervical adenitis (diagnosed by biopsy) or bone disease (but specifically diagnosed) in her girlhood days or shows the scars of a pararectal fistula and when examined has a palpable adnexitis, tuberculosis may be suspected. If further examination shows tuberculosis this should receive immediate attention rather than the infertility.

If palpation reveals a large hydro- or pyosalpinx, pelvic rest, local heat, antibiotic therapy or chemotherapy and possibly surgery are indicated and all sterility studies should be discontinued until this condition has been relieved.

In order to determine whether there are any congenital and developmental abnormalities of the uterus it may be necessary to use not only bimanual palpation but also uterography and the uterine sound to explore the cervix.

Fibroid tumors in the uterus may not necessarily hinder the process of fertilization but they may impede the movement of the spermatozoa or ovum. Also they may prevent proper implantation of the fertilized ovum in the endometrium and proper development of the placenta. Surgery is indicated in any patient in which the tumor is so large that symptoms (and even without symptoms) are brought on as a result of pressure on neighboring organs. Uterosalpingography is necessary in the case of smaller tumors so as to determine the size and location and whether they are impeding the fertilization process. Small tumors or myomas may be located in such a way that they distort the surface of the endometrium or occlude the interstitial portion of the fallopian tubes. In such cases the tumor should be removed by surgery. One study has shown that abdominal myomectomy resulted in conception in 38 per cent of previously sterile women in whom there were no other causes for the condition.[40]

Malformations of the uterus may be the cause for sterility also. In some cases the Müllerian ducts may not fuse completely and may cause certain abnormalities of the uterus which can be observed visibly or by

Fig. 5

Fig. 6

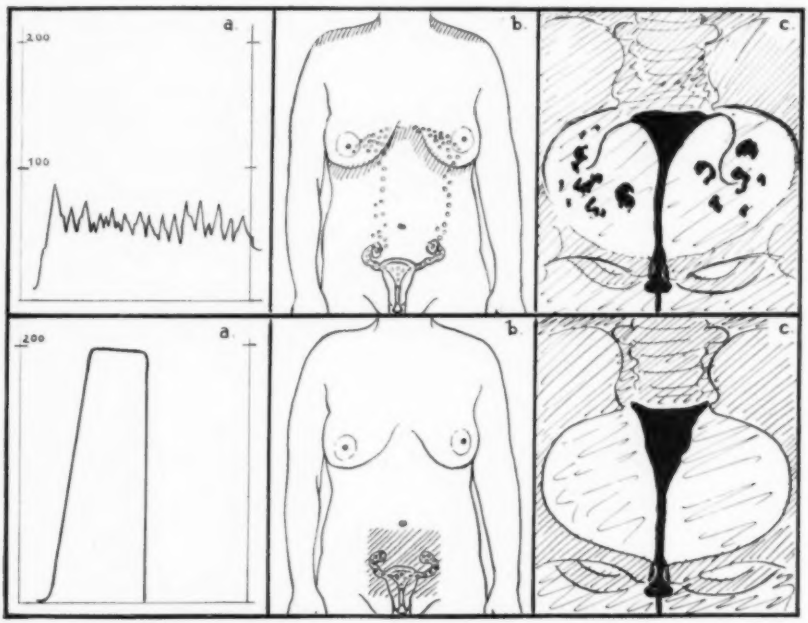

Fig. 5. Normal tubal patency. a. Uterotubal insufflation graph (Rubin). b. Distribution of CO_2 gas under the diaphragm. Shaded lines show areas of pain when patient assumes erect position (Rubin insufflation test). c. Hysterosalpingogram. Normal tubal patency allows spill of contrast medium in the pelvis.

Fig. 6. Bilateral tubal obstruction. a. Uterotubal insufflation graphs (Rubin). b. CO_2 gas confined by tubal blockage. Shaded lines show area of suprapubic pain (Rubin insufflation test). c. Hysterosalpingogram. Bilateral interstitial tubal obstruction prohibits spilling of contrast medium.

palpation. There may be a two-horned or double uterus which can be diagnosed by means of the sound and radiographic study. It is possible for conception to occur in the double-horned or double uterus just as it is in the hypoplastic type but the incidence of a miscarriage or monstrosity is considerably greater.[16]

Examination may reveal a congenital retroversion of the uterus. If this is not the fixed type caused by pelvic inflammation the diagnostic survey may be continued. Further investigation may reveal that this is responsible for improper insemination in which case the condition may be corrected bimanually and a Smith-Hodge pessary inserted to hold it in the normal position until conception occurs. If this is not possible surgical correction may be advised. The retroversion of the fundus may interfere in fertilization by causing passive congestion or traction on the tubes and tubo-ovarian ligaments. However, this is not usual.[5]

It is important of course that surgery be resorted to only when absolutely necessary and when all other measures have failed.

It is possible also that the vascular system concerned with the reproductive organs may be responsible for sterility. The system has a peculiar lability and is unusually affected by gravity, by estrogen, by emotion and other nervous stimuli. Changes in circulation in the reproductive organs bring about definite signs and symptoms among which are included: pain in the lumbar or suprapubic regions; pelvic heaviness; abdominal fullness; a sense of irritation of the labia, rectal tenesmus; frequency and burning on urination; difficulty in walking, sitting or standing; profuse leukorrheal discharge from the cervix; increased and prolonged menstruation with recurrence of bleeding after end of the period. Lying down sometimes brings some relief. In most cases the symptoms are intensified before the period and temporarily relieved during it. The condition may be remissive for a time but there is always a relapse. Examination of the patient reveals unusually sensitive breasts a few days before menstruation; a normal or slightly larger fundus; frequently an eroded cervix and almost invariably an endocervical discharge. The ovaries may be tender which may lead one to suspect a prolapsed or cystic ovary. Elevation of the uterus in bimanual examination usually causes pain in the uterosacral ligaments which is typical.

In most cases this condition may be mild or temporary and may temporarily reduce the chances for conception but if it continues it may result in organic changes which in turn would cause permanent sterility.

Tubal Occlusion

The fallopian tubes are expected to collect the ovum, carry it to the uterus and provide a fluid medium in an open channel for the sperm to pass through. It is possible also that the fluid in the tubes may provide certain biochemicals which are needed by the gametes and the conjugated zygote.

In order to properly perform their functions the tubes must be patent and normally contractile. The lining must be capable of secreting fluid and must have cilia which along with myosalpingial peristalsis transport not only its own fluid but also some peritoneal and follicular fluid to the uterus. It is necessary also that this current be sufficiently strong so as to pull the ovum into the tubal ostium if possible from the surface of the ovary. If it cannot pull it from there it should at least be able to suck it from the peritoneal fluid. Under normal conditions the muscle fibers in the ligament connecting the tubes and ovaries, the mesosalpynx and the fringe on the end of the oviduct which are usually well-developed will be sufficient to apply the end of the tube which is fan-shaped and flaring to the ovary so as to form an ovisac. However, this process may not be accomplished properly if the fringes on the end are misshapen or have adhesions among themselves or between them and other parts.[16]

Partial or complete bilateral occlusion of the tubes may be caused by a gonococcic or postabortal infection. However, in some few cases such infections may only destroy

the peristaltic action. In some rare cases asymptomatic genital tuberculosis may be responsible for the dysfunctioning of the tubes.[5]

There are two procedures available for determining tubal function. Uterotubal insufflation with carbon dioxide gas known as the Rubin test is the easier method and can be carried out by one person anywhere. In addition, if it shows that the tubes are patent further complicated tests are not necessary. Uterosalpingography employs radiography and therefore is more complicated and requires more apparatus. For most purposes it is indicated after several insufflation tests have given abnormal results. Both methods can be done in a single examination by means of a new apparatus known as the gynograph.[42]

Tests for tubal function may be carried out safely with proper care but there are certain contraindications such as acute or chronic pelvic disease as well as chronic cervicitis and *Trichomonas vaginalis* vaginitis. If any such conditions exist the tests should be postponed until they have been cleared away. If there are cervical erosions which are infected they should be cauterized and allowed to heal. Tubal tests are contraindicated also if there is uterine bleeding or if it is too close to the menstrual period. It has been recommended that the test be done between the 4th and 7th days after the normal menstrual period has passed.[43] The premenstrual endometrium also may create a false impression of occlusion. If the patient is pregnant gas or the diagnostic medium may pass into the open uterine blood vessels and cause an embolism. If the patient is irregular in menstruation no more than 5 days should be allowed to pass after the flow has ceased before the test is made unless a biologic test has indicated that no conception has taken place. If conception is contraindicated because the patient has some systemic disease the tubal test should not be done. In order to prevent infection from spreading a tubal test should not be done in less than a month's time after intra-uterine manipulation. Quiescent tuberculous salpingitis may be present and undiagnosed in which case the patient may experience abdominal pain and a rise in temperature after the test. If this is the case no further tubal tests should be made and the patient should be examined for tuberculosis.[5]

Diagnostic Tests

A. Rubin Test

The Rubin test for tubal competency is based upon an insufflation technic. It is preferable to perform this test, as previously stated, within a few days after cessation of the menstrual flow. After placing the patient in the lithotomy position she should be examined for any possible conditions which might preclude the use of this test. The position of the uterus is determined also. A bivalve speculum is employed to expose the cervix which is then cleansed and treated with an antiseptic. The direction and degree of resistance of the cervical canal is then determined by means of a sound. A tank of carbon dioxide is connected by means of rubber tubing to a sterile Keyes-Ultzmann or Jarcho cannula (previously tested for patency) which is then passed gently into the uterine cavity.

The rubber acorn on the Jarcho cannula or collar on the Keyes-Ultzmann cannula is adjusted at the proper distance from the end in order to allow the openings on the end to pass the internal os and the collar or tip of the acorn to fit into the external os. It is important that the connections between the external os and the cannula be air-tight. In some cases it may be necessary to use a tenaculum on the cervix in order to insure this or to aid in properly placing the cannula. Some recommend that the cannula be flushed with gas before it is inserted into the cervical canal. Uterotubal spasm may be brought on if the gas is allowed to flow into the cannula too quickly so that it is preferable to not start the gas flow until the cannula has been in position for at least 2 minutes. A manometer is used to register pressure; a tubing and large rubber bag are used to reduce pressure; and a bulb is used to control the pressure of the gas. The volume, too, must be carefully controlled. The specifications for volume and pressure rec-

ommended are 90 cc. per minute at 10 to 15 lbs. pressure. This pressure should never be allowed to exceed 200 mm. of mercury. A pressure higher than 180 mm. usually does not give any additional results. The pressure should be raised very slowly and if gas begins to escape from the uterus it is not necessary to increase it any further. If the test is negative (gas does not pass at 180 mm.) it should be repeated at this same visit 2 or 3 times to ascertain whether tubal spasm may be the hindering factor. In most cases two bulbfuls of gas are sufficient. If the test is still negative after repeated trials it should be repeated during the next one or two cycles. A permanent, visual and most accurate record of the test may be made by using apparatus with a kymograph. However, in most cases the nonrecording apparatus is sufficient.

This test is interpreted according to the level of pressure obtained, the pain experienced during the test and the occurrence of shoulder pain after the test. Most patients during the test will experience cramps similar to those occurring in the beginning of menstruation but the degree of pain varies with the patient's sensitivity. If the tube is occluded at the fimbriated end there will be severe pain unilaterally. If it is possible to pass only 30 cc .of gas at 80 mm. of mercury or if 200 mm. of mercury pressure are necessary for the desired 90 cc. volume it is indicative of occlusion of the tubes. In both cases shoulder pain will result if 200 cc. of gas are passed. If a sufficient quantity of gas enters the peritoneal cavity by way of the patent tubes the patient will experience a transitory pain usually in the right shoulder but occasionally in both shoulders. No increase in pain in the pelvis as the gas escapes from the uterus indicates that at least one tube is patent. The shoulder pain may confirm this but it is not considered essential proof. Pelvic pain when the gas escapes at pressures above 140 mm. of mercury may indicate that peritubal adhesions are causing resistance or a "clubbed" tube may be dilated. If the gas is not passing out of either tube it will be indicated by the manometric reading remaining stationary at one point while continuous but not increased pressure is applied by squeezing to the bulb. This may be indicative that both tubes are occluded. However, the test should be repeated several times to determine whether the negative result may be due to synchronous contraction of the tubes which may occur during and immediately following ovulation. Obstruction is indicated rather definitely by repeated negative tests.

If the test is positive it is not necessarily true that the tubes are normal in function since it may result from patency of only one tube. Further evidence may be obtained by auscultation of the lower abdomen while the test is being done. If the tubes are normal the gas bubbles through with a low-pitched, intermittent sound whereas it is high-pitched and continuous when the tubes are abnormal.[44] When the kymograph is used to record uterotubal insufflation the normal reading appears in peristaltic waves.[5,16,44a,44b,44c]

B. Uterosalpingography

Uterosalpingography is another method which may be used to determine the patency of the tubes but it is more complicated and more expensive than the Rubin test and should not be used in its place. Its use chiefly is indicated after the Rubin test has shown the presence of some abnormality. If a plastic operation on the tubes is indicated uterosalpingography is necessary to aid in locating the obstruction. In many cases the true obstruction will not be found until the operation is performed. In suspected neoplasms of the uterus uterosalpingography is useful also to study the intra-uterine contour. It also has some empiric therapeutic value.

In preparing the patient for this test she should be advised to use a cleansing douche and enema on the morning of the test. If she has a history of asthma, hay fever, urticaria or drug sensitivity she should be given an antihistaminic drug with a full glass of water one hour before the test. It is believed that this will aid in preventing the infrequent but terrifying peritoneal reaction from the radiopaque

agent which occurs if the patient happens to be sensitive to iodine. Some also advise giving one tablet containing 50 mg. of adiphenine hydrochloride and 20 mg. of phenobarbital at one and two-hour intervals prior to the test so as to overcome any uterotubal spasm. It is important that the patient be fully informed concerning the nature of the technic and advised that she will experience little discomfort.[44d]

The technic for performing this test is the same as that described above except that a radiopaque agent in a syringe is used instead of the carbon dioxide. The test is performed at the same time as specified for insufflation. The syringe may be attached to the Jarcho[16] or Keyes-Ultzmann[5] cannula or to a screw type, self-retaining cannula.[45] The pressure employed while the radiopaque agent is instilled into the uterus may be controlled by means of a Jarcho pressometer.[46] Not more than 10 cc. of a solution of the radiopaque medium are injected gently under pressure not exceeding 200 mm. of mercury. The x-ray is then taken as the apparatus is held in position. It may be desirable to take several x-rays in order to facilitate diagnosis.

Some recommend that the fluoroscope be used during the procedure instead of x-rays so that the flowing solution can be observed and selected serial films can be taken. As the uterine cavity fills negative shadows observed indicate intra-uterine lesions. If the tubes are occluded there will be severe pelvic pain when the plunger of the syringe is pressed and the pressure of 200 mm. of mercury will be insufficient to inject the liquid. The patency of the canal is indicated by the delineation of the tubes in the uterosalpingogram. If one or both tubes are open at both ends the radiopaque agent spills over into the pelvis. Obstruction of any kind in the uterotubal system is indicated by a limitation of the shadow.[5,16]

There are a great many radiopaque agents which may be used for uterosalpingography. It is important that the agent used meet the following requirements: (a) Provides good contrast on roentgen visualization; (b) Possesses sufficient consistency to allow ample time for study as well as follow-up roentgenograms; (c) Must be neither too rapidly nor too slowly absorbed; and (4) Must not be irritating to the mucous membranes or peritoneum. It has been stated that at present no medium meets all of these requirements.[47] The solutions of iodine compounds in oil are considered by some to be excellent as contrast media but the high incidence of untoward reactions is a disadvantage. The iodine salts in aqueous solutions combined with viscous agents also are used but they are so rapidly absorbed that delayed emptying of the tubes which occurs in partial occlusion cannot be observed.[5] The following radiopaque agents have been suggested by various authorities who have found them useful in their practice: (1) An iodized and chlorinated peanut oil with approximately 27 per cent of iodine and 7.5 per cent of chlorine chemically combined having a specific gravity of 1.25 which can be diluted with peanut or olive oil up to 3 times its volume;[16] (2) Iodopyracet compound solution contains approximately 25 per cent (w/v) of iodine in organic combination in an aqueous solution and also may be used in diluted form;[16] (3) Iodobrassid contains approximately 41 per cent of iodine in organic combination and is used in a 60 per cent solution in sesame oil; (4) Iodized poppy-seed oil containing approximately 40 per cent of iodine in organic combination;[47] (5) Methiodal sodium with acacia contains 40 per cent of the active ingredient which contains in turn 52 per cent of iodine in organic combination;[48, 48a] (6) A mixture of the ethyl esters of isomeric iodophenylundecylic acids when emulsified with water and oleyl methyl taurine may be used in 50 per cent concentration;[49] (7) The diethanolamine salt of 2,4-dioxo-3-iodo-6 methyl-tetrahydropyridine-N-acetic acid in 50 per cent concentration with 4.8 per cent polyvinyl alcohol for viscosity and 0.01 per cent benzalkonium chloride for preservation is used in aqueous solution; (8) Sodium iodomethamate in aqueous solution may be used provided some viscous substance such as a surgical jelly, acacia or methyl cellulose is added to provide viscosity and tackiness. Such a substance also should be added to product no. 2 when it is used.

Product no. 4 is recommended by some but others feel that its slow absorption and possible irritant qualities may be undesirable.[47] Some feel that in some cases the residue remains at the impacted point for too long.[50] Product no. 7 is considered to be as viscid as the oil solutions and does not cause chemical irritation.[5,51-54]

Whatever medium is used it should be warm and the quantity should be just sufficient to adequately fill the uterine cavity.

As accessory therapy some patients also were given pelvic diathermy beginning at the conclusion of the menstrual period and continuing every third day until the time of the uterosalpingography. Many patients also were given estrogens daily from the end of the menstrual period until the time of diagnostic test.[54a] These accessory treatments also were used by other workers as well.[50, 54b, 54c, 54d]

In its specifications for iodized oils to be used as contrast media the American Medical Association's Council on Pharmacy and Chemistry recommends that oils which have aged and darkened beyond their original color should not be employed and intra-uterine injections should be made only under fluoroscopic observations.[55]

The patency of the tubes also may be tested by instilling a dye into the uterine cavity. Recommended for this purpose is indigo carmine which is non-irritating. This may be particularly helpful in patients who are going to be subjected to culdoscopy.[48a, 55a]

C. Culdoscopy

The instruments used for peritoneoscopy have recently been modified so as to be used to observe part of the uterus, tubes and ovaries. The instruments for this purpose include a speculum, tenaculum, sheath with plunger, telescope and syringe and needle for local anesthesia if desired. The bowel and bladder are emptied and the patient is placed in the knee-chest position. An opening is forced through the posterior vaginal wall in the midline 4 or 5 cm. posterior to the reflexion of the entrance and the stilette and sheath are inserted into the cul-de-sac. In order to lessen the discomfort of the patient due to her position and to the examination also it may be advisable to give 1 cc. of meperidine hydrochloride or ¼ gr. of morphine 15 minutes before the examination is begun. Some prefer to infiltrate the posterior vaginal wall with a 0.5 per cent solution of procaine hydrochloride but it is believed that this results in a separation of the peritoneum from the vaginal epithelium and the sheathed plunger is hindered in puncturing the peritoneum. After the sheath has been placed the telescope is inserted. Since this procedure involves surgery it should be done only by a qualified individual.[16,56,57] It also may be done under thiopental sodium anesthesia.[16]

By means of this examination it is possible to ascertain whether the fimbria are congenitally deformed, the presence of impalpable tubal adhesions, and various ovarian changes. In interpreting the observations the physiologic cyclic changes occurring in the tubes must be taken into consideration. Salpingitis may be indicated by purple enlargement of these structures if the patient is in a pre- or post-ovulatory phase. The mechanism by which the tubes obtain the ovum may not be functioning properly and this is indicated by bands of adhesions which extend from the fimbriated end or the ampulla region to the ovary or other organs.[16]

Therapy

If salpingitis is present it should be treated with antibiotic therapy or chemotherapy.

Some have found that filmy adhesions or broken-down tissues in the tubes may be removed by repeated insufflations or by flushing with the radiopaque agent. This has been shown by the fact that within 1 or 2 months after the performance of the Rubin test pregnancy may occur. This may be due entirely to mechanical removal of the materials hindering the passage of the ovum. On the other hand patency of the tubes has been restored after repeated administration of the radiopaque agent. This still is a matter for further investigation.[47] Others believe that the same result may be accomplished by lavage with 5-10 cc. of physiological salt solution or Locke-Ring-

er's solution. There is a possibility of causing inflammatory adhesions so that it may be advisable to add a small quantity of penicillin. In any event such therapy should be carried out in sufficient time before the ovulatory period so that all traumatic blood is removed naturally from the tubes lest it hinder the sperm from penetrating the ovum. In order to avoid any possible transplanting of viable endometrium into the peritoneum this should not be done too soon after the menstrual period. There is also danger of inducing "peritoneal shock."[16]

Delicate surgery is necessary in cases where there are adhesions with or without closure of the tubes. Glass, metal or plastic forms are now being tested for use in maintaining the opened lumen at the ovarian end and in resection and implantation at the opposite end. It is possible that some of the new absorbable surgical sponges may be useful for this purpose. It is important that sulfonamides and penicillin be used promptly for postoperative antisepsis. It may be helpful to disinfect the alimentary canal previous to the operation by giving one of the sulfonamides used for this purpose for 10 days prior to the operation.[16] Phthalylsulfathiazole, phthalylsulfacetimide, succinylsulfathiazole, or sulfaguanidine may be given in divided doses of 12 Gm. daily. The latter two are not used as frequently since the advent of the first two. At the conclusion of surgery various types of sutures may be used. However, nylon sutures appear to be less irritating in these tissues.

Ovarian Disorders

A. Tumor

A gross ovarian tumor occasionally may be responsible for infertility and its removal should be accomplished before any further studies are made. Cystectomy is preferable to other types of surgery.[40] An ovarian tumor may be accompanied by amenorrhea and may lead the patient to think she is pregnant. In this case a biologic test in addition to routine pelvic examination is necessary. Retention cysts in the ovary which can be determined by bimanual palpation will cause the ovary to appear slightly enlarged and irregular in shape. However, unless there is amenorrhea and sterility the condition usually will cause no harm. Wedge-shaped cortical resection of both ovaries may be necessary if no other cause for sterility can be determined or if the ovaries are polycystic.[58] This has been reported to be successful by some workers.[59]

B. Endocrine Factors

It is understood, of course, that reproduction is completely dependent upon the well-balanced functioning of the endocrine system. If the thyroid-pituitary-ovarian-uterine mechanism is upset in any way abnormal menstruation results. Endocrine disturbances in the female may take two forms as follows: (1) Amenorrhea and dysfunctional uterine bleeding and (2) anovular cycle.

1. Amenorrhea

Amenorrhea, associated with sterility, is usually caused by a functional disturbance of the anterior pituitary gland which is known as Frölich's syndrome. It is characterized by varying degrees of girdle-mons-mammary obesity, hypertrichosis, massive and masculine type of pelvic bones short, thick neck, underdeveloped genital organs, high sugar tolerance and low specific dynamic action of protein. Although the patient may menstruate regularly until she is 20 or 30 years of age the condition originates early in life. A determination of the basal metabolic rate usually reveals that it is within the lower physiologic limits. The excretion of pituitary gonadotropins and estrogens is low.

Amenorrhea also may be caused by a primary ovarian deficiency. This is found in about 20 per cent of the patients having amenorrhea and inability to conceive. It is less frequent than that brought on by pituitary dysfunctioning. The signs and symptoms of this condition include a slim figure, nervousness, highly feminine appearance and demeanor, visceroptosis, gastro-intestinal spasticity, irritability of the bladder, dysmenorrhea, dyspareunia and many other symptoms of autonomic nervous system instability.

In order to diagnose this condition and to make any prognosis it is necessary to biologically assay the blood serum or urine. In primary ovarian deficiency the estrogen secretion is not sufficient to inhibit the anterior pituitary lobe so that there is a large amount of pituitary gonadotropin excreted. There are various standards which are used and which indicate that the failure probably cannot be repaired as follows: One mouse unit in 4 cc. of blood serum or in 12 cc. of morning urine or 100 mouse units of the follicle-stimulating gonadotropin in 24 hour output of urine.[60,61]

Hypothyroidism may be associated with amenorrhea but generally it is accompanied by menometrorrhagia. Fertility of the female is influenced by both of these conditions, however, because thyroxin from the thyroid gland is responsible for the maintenance of the gonadotropin - producing cells of the anterior pituitary, the ovaries and in fact every cell in the body.[61] Menstrual disorders and sterility also may result from dysfunctioning of the adrenal cortex and the pancreas. The uterus, too, is basically involved in the pituitary-ovarian function and it may show congenital or acquired deficiency in growth response.[60]

It is possible also that sterility may be due to an imbalance in the quantities of the two ovarian hormones, estrogen and progestin, so that the endometrium is not adequately prepared. If the corpus luteum ceases functioning prematurely the pregnandiol complex disappears in the urine about 5 days before menstruation begins and this may result in a premature degeneration of the endometrium so that the fertilized ovum cannot be implanted.[60]

Therapy

In the therapy of amenorrhea associated with infertility it is necessary first to eliminate by examination the possibility of any organic lesions of the pelvic organs and pituitary gland among which are included polycystic ovaries, chromophobe adenoma and pituitary cachexia. Any obvious foci of infection also must be eliminated. If the diet is faulty it should be balanced and supplemental vitamins given. In cases of obesity small doses of desiccated thyroid may be helpful provided the basal metabolism is normal. Outdoor exercise also may help.[60, 61]

If the amenorrhea is due to hypothyroidism thyroid therapy is of value. The basal metabolic rate should be regulated to a plus 5 per cent. Because this condition may be masked completely it is recommended that any infertile woman with amenorrhea be given a basal metabolism test.[61]

It is generally conceded that the pituitary, chorionic and equine gonadotropins are of little value in treating this type of amenorrhea. Good results, however, have been achieved with use of estrogen-progestin therapy. One authority recommends that 10,000 rat units of estradiol benzoate or 100,000 international units of any other natural estrogen be given parenterally every 3 days until 5 injections have been given. Then 10 mg. of progesterone are given daily for 5 consecutive days beginning on the day after the last injection of estrogen was given. It is necessary to repeat the course of therapy on the same days for 3 months in succession. After each course there will be endometrial bleeding due to the progestin stimulation.[62] Another course of therapy uses oral administration. Diethylstilbestrol 5 mg. and phenobarbital 32 mg. are given at bedtime for 12 days after which 60 mg. of anhydrohydroxyprogesterone are given each day for 5 consecutive days. This course also is repeated on the same date for 3 consecutive months.[61]

Studies have revealed that this type of therapy restores the normal menstrual rhythm and consequent fertility in approximately 15 per cent of the patients. In those patients where the amenorrhea has existed for a long period of time it may be so severe that partial or complete restoration of the pituitary-ovarian functioning will not be able to stimulate the uterus and bring about menstruation. In such instances then the condition is due to a residual hypoplasia of the uterus.[61]

In treating the case in which the progestin phase is inadequate it is recommended that progestin be administered parenterally

in doses of 5 units or mg. on alternate days during the second half of the menstrual cycle. By this method the implantation of the fertilized ovum is aided because the nutritional state of the endometrium is improved.[60]

Radiation of the pituitary and ovaries is another method of treating amenorrhea. Some believe that to date the dosage is unsatisfactory and that this type of therapy has no place in treating sterility.[60] Others feel that irradiation of the ovaries has potential dangers because it may result in chromosomal mutations which in the second and third generations might cause foetal monstrosities.[63] Thus far this has been demonstrated in rats and mice.[64-68] However, they also state that small doses to the pituitary may cause no harm but in their experience this has shown no effect.[63] They do believe, however, that in patients with prolonged amenorrhea caused by secretion of excess estrogen by the granulosal cell with no periodic depression of the activity of this cell and subsequent withdrawal bleeding radiation might be effective in that it would depress the granulosal cell. This in turn would stop the secretion of estrogen and menstruation would result. Any physiological activity resulting from radiation is believed to be due to depression of an inhibitory substance rather than stimulation of glandular tissue.[63]

Other authorities believe that low-dosage irradiation of the pituitary gland and ovaries following the technic of Edeiken[69] or Kaplan[70] is the most effective, most rapid and least expensive method of bringing the menstrual rhythm back to normal followed by fertility restoration. A study of 50 patients given organotherapy to no avail showed that the menstrual disorder had existed for 2 to 15 years with an average of 6.5 years. The period of barrenness varied from 2 to 10 years with an average of 4.3 years. After low-dosage irradiation was used on the pituitary gland and ovaries 43 or 75.4 per cent were able to conceive after the first, second or third menstrual cycle. Sixteen did so in 1 month, 18 in 2 and 9 in 3 months. Of these 43, 5 aborted during the first trimester but the other 38 had no difficulties. Three of the 5 who aborted later had one or more healthy babies. In 88 per cent of the 53 patients the normal menstrual cycle was restored.[61]

2. Anovulatory Cycle

The anovular cycle usually is not distinguishable from the normal menstrual cycle and therefore it is necessary to test very carefully for this as a possible factor. Girls at the age of puberty normally have anovulatory cycles. Lactating women and women in the premenopause stage also have anovulatory cycles. Such cycles are also found occasionally in all women who menstruate regularly but they are not considered to be significant unless the woman is unable to conceive. The occurrence of anovular cycles in sterile women was first reported in 1932.[71] It is believed that this factor occurs in 5 to 15 per cent of women who are sterile but if there is no other cause for sterility the frequency is probably greater.[5, 72] Because of the possibility of an anovulatory cycle occurring occasionally diagnostic tests for this should be repeated over several cycles.

Ovulation is dependent upon proper functioning of the corpus luteum. When this is disrupted there is no progestin or progesterone influence on the endometrium and consequently ovulation does not occur. Therefore tests for progesterone and for the pituitary gonadotropin are indicated. Biologic assays involving complicated laboratory methods are available but for general purposes these are not expedient. The secretion of progesterone during the ovulatory cycle has certain effects on the body as follows: (1) Basal body temperature at waking is increased; (2) The proliferated endometrium is characteristically changed in its cytology; and (3) The menstrual flow is similar in several successive cycles and the onset is periodic. Therefore it is possible to employ certain of these factors in diagnosis.[16]

a. Temperature Curve

The change in temperature in conjunction with the menstrual cycle was first observed in 1904 and further studies have shown that[72-80] it is definitely linked with

ovulation. If the woman is normal in menstruation her body temperature at waking will be relatively low during the estrogenic phase. It may vary slightly from 0.1 to 0.3 degrees each day but this is not significant. Immediately before ovulation the temperature reaches its lowest point. When ovulation takes place the temperature rises from one-half to one degree. Some state that it rises 0.3 to 1°F. As the luteal phase, following ovulation, progresses the temperature remains at this relatively high level varying slightly each day but still above the level observed preceding ovulation. As the corpus luteum regresses the temperature drops. This usually occurs approximately 2 days before menstruation. If the patient conceives at ovulation time the temperature continues at the high level. The determination of ovulatory or anovulatory cycles by recording of basal body temperature has been called "the poor man's Friedman Test" because it is easily and inexpensively carried out by the patient herself and has repeatedly saved further investigation and more expensive procedures. It is important that the temperature graph be properly interpreted.[5, 81]

Technic

Because the variation in the pre- and postovulatory levels may be only 0.1 to 0.3°F. the temperature recording must be done very carefully. It is necessary first to determine whether the patient can read a thermometer. The temperature may be taken orally or rectally, the latter being more accurate because it is not so easily affected by extraneous causes. Taking of the vaginal temperature should never be advised because of the danger of losing the thermometer in the bladder through the urethra. For the purpose of taking the temperature any standard oral or rectal thermometer may be used effectively. Recently there has been made available a special thermometer which registers only from 96 to 100 degrees. The width of the scale makes it easier to take a more accurate reading. The patient should be instructed to take her temperature as soon as she awakens and before she arises for any purpose. It should be started the first morning after menstruation has begun. The thermometer should not be read until after it has been in the rectum for 5 minutes. If the patient can do so she should be given a simple graph on which to record the daily readings. She should be instructed to record the reading immediately after taking it and not depend upon her memory later in the day. If necessary the patient should record the readings in succession and bring them to the office for the graph to be constructed. Printed charts for this purpose are available from the American Association for the Study of Sterility, the Planned Parenthood Federation of America, Inc., and several pharmaceutical firms. In addition to the temperature recordings the patient should be instructed to record the number of menstrual days, date of coitus, pain of Mittelschmerz, breast discomfort, discharge or the presence of upper respiratory infection, insomnia, gastrointestinal distress or any other condition which might affect the temperature curve.[5, 61, 81]

As stated previously, it is important that the temperature graph be interpreted properly. Although it can be fairly accurate it is not always infallible because it is an indication of a physiologic process. In many cases the curve is clearcut and the dip preceding ovulation and the rise at ovulation are clearly defined. This change usually occurs 14 days, plus or minus 2, before the menstrual flow begins. Some therefore believe that the optimum degree of fertility is at the time of the temperature rise indicating ovulation. Others believe that it may be the time just preceding the rise in temperature.[81] Unfortunately, in many cases there may be no sharp dip and the rise may be slight but persistent and gradual in which case it is difficult to recognize the time of ovulation. Such a curve, if it is biphasic signifying ovulation, is believed to be due to pre-ovulatory luteinization of the follicle or delayed development of the corpus luteum. It resembles a struggle for domination between the estrogen (hypothermic) and the progestin (hyperthermic).[5]

If this study over a period of many successive cycles reveals that they are re-

peatedly ovulatory it is indicative that no endocrine factor, involved in the production and release of ova, is responsible for the infertility. If the curve is not biphasic then it is indicative that no corpus luteum has developed and there has been no ovulation.

In those cases in which the curve is indecisive and anovulatory cycles are difficult to determine an endometrial biopsy is indicated.[5]

b. Farris Rat Test

In extreme cases, if desired, the two-hour rat test developed by Farris may be used. This test is based on the presence of pituitary gonadotropins in the urine for a few days prior to ovulation. From it, can be determined whether or not the patient ovulates and the expected time of ovulation. However, this test is difficult to perform and it is expensive.[82, 83]

c. Endometrial Dysfunction

If the various factors in sterility of the female as they have been considered do not remedy the condition an endometrial biopsy may be necessary to provide further information. The occurrence of ovulation, development of a functioning corpus luteum hormone and the endometrial response to ovarian steroids can be determined by this means. The optimum time for obtaining this specimen is several days prior to the expected menses or the last week of the cycle. It is important that it be obtained before the regressive changes, which precede menstruation, take place since these do not allow an accurate interpretation to be made. Some authorities recommend use of contraception during the cycle being studied so as not to interfere with a possible pregnancy.[5, 13, 16, 84]

Technic

The specimen from the endometrium may be obtained by curettage or biopsy.[85] The equipment required includes a speculum, tenaculum, syringe for suction, suction curette and a bottle of Bouin's solution. Depending upon the technic used the physician may prefer an endometrial biopsy forceps, a specially-designed cannula-curette with or without suction or a small fenestrated curette. Some believe that the patient need not be anesthetized whereas others feel that it is too painful without anesthesia. Preceding this procedure the patient should be examined to be sure there is no cervicitis or adnexitis which are contraindications. The length and direction of the uterine canal should be determined by sounding. Employing aseptic technic a curette of small caliber should be inserted. By means of the attached syringe negative pressure should be applied while the curette is used to stroke the fundal portion of the uterus high up on the anterior or posterior wall. After the curette has been inserted it should not be withdrawn until tissue has been taken from at least three sites. This lowers the incidence of infection considerably. The biopsy forceps does not allow for this so that curettage is probably the preferable method. As soon as the tissue is removed it should be preserved in Bouin's solution.

Interpretation of the condition of the endometrial tissue is also very important. In most cases an expert in this field is necessary to analyze properly the tissues. Various degrees of proliferation, hyperplasia and atrophy are observed when the alterations brought about by the secretions involved in ovulation and development of corpus luteum are absent. If the corpus luteum is normal in its function staining the tissues with hematoxylin and eosin will reveal glandular and stroma cells characteristic of any postovulatory cycle day and menstruation will occur after an interval, which when added to the day of diagnosis, makes 14 days. If the menstrual periods are relatively similar the luteal functions probably are also. If the interval between the day of diagnosis in the postovulatory period and the day of menstruation is less than 12 days, as shown by repeated biopsies, luteal function is probably incomplete. After the proliferative phase has passed the sum will never exceed 14 and rarely 16. If the endometrium is still in the proliferative phase and menstruation begins within 10 days anovulation is indicated. Nonresponsiveness of the en-

dometrium, unrelated to anovulation, may be indicated by an atrophied endometrium prior to menstruation. This tissue examination reveals only whether the corpus luteum is functioning, for how long and how well. Normal activity must be assumed to lead to normal ovulation. Normal histochemical function of the endometrium is not determined by this examination and this is an object for further research.[5, 16]

Anovular menstruation may be differentiated from the pseudomenstruation from the nondeveloped endometrium by biologic assays. If the urinary levels of estrogen and pregnandiol (excretion product of progestin) are normal in the premenstrual period the uterus rather than the ovary is at fault. If the anovular menstruation is established as being the cause assays for pituitary gonadotropin should be carried out to determine whether this is the cause of anovulation. If none of the hormone is found in repeated assays this hormone is deficient. If the ovary is responsible and the pituitary gland is normal there will be increased amounts of gonadotropin present.[5]

3. Vaginal Smear

The vaginal smear is another simple but informative diagnostic aid in sterility. By aspiration a small quantity of secretion is removed, placed on a slide and immersed in a solution of ether and alcohol. Papanicolaou's or Schorr's technic is used for staining. By this method it is possible to study cyclic changes, derangement of functions such as amenorrhea, hyperestrinism, estrogen deficiency and pregnancy. Ovulation also can be determined but in this case a series during successive cycles is necessary. This method should not supplant other diagnostic methods but it is of value particularly to determine when the irregular cycle makes it difficult to obtain a biopsy. It is of value as an adjuvant to other aids. The various findings are shown in the table.[86]

4. Menstrual Study

The study of the menstrual periods of the patient are also important in diagnosing sterility. The recorded dates of menstruation should be checked and the patient questioned to ascertain whether the periods are similar in nature. If practically all the cycles are 26 to 30 days plus or minus 2 in length it is probable that ovulation occurs in most of the cycles. This is also true if the menstruation is very infrequent but the periods are similar. This is particularly so where the patient has essential dysmenorrhea.

5. Study of the Ova

Thus far it is impossible to determine whether the released ovum is good or bad. It is possible that women between 40 and 50 produce some ova which cannot be fertilized. Abortions may be caused by the same defect as well as by the possible deterioration of a normal egg before cleavage begins. Radiation therapy for other disorders may cause the production of defective ova. This is also possible in daughters of mothers who have undergone radiation therapy before birth of the daughter.[16]

The ovum is enveloped in its granulosa and is inert. In the current of follicular fluid it drifts from the vesicular sac. Therefore the follicular fluid must make contact with the portion of the peritoneal fluid which is pulled by the cilia and peristalsis of the tubes. Endometriosis, uterine or intraligamentous fibroids or adhesions may push the ovary from the area which is influenced by the current in the tubes and the ovum may not be able to enter the oviduct. Adnexal abnormalities possibly may be detected by bimanual palpation but this may be very difficult. In cases where pneumoperitoneum is established highly specialized roentgenography may be necessary. Culdoscopy or laparotomy, however, are more direct and accurate methods. In cases where such conditions exist most of the ova are probably lost in the fluid of the pelvis.

6. Imperfect Luteinization

The properly functioning endometrium with its blood vessels regresses if the available progesterone is insufficient to last until the trophoblast can produce the same

or a similar hormone and can supply it to the maternal circulation. Thus it may be possible that the emptied follicle goes through an imperfect luteinization and consequently the endometrium is not cultivated properly for the 4 to 6 days after ovulation and prior to implantation of the fertilized ovum. The blastula develops into the trophoblast and embryo while the corpus luteum regresses. This regression is reversed by the secretion of chorion hormone by the trophoblast into the maternal circulation. It is possible that some corpora lutea may be unaffected by this influence and so progesterone, necessary to protect the endometrium and its vessels until the embryo has access to the maternal circulation, may not be secreted. This may be revealed by endometrial biopsy and temperature graphs. It is possible that pregnancy may occur in spite of this luteal dysfunction but this is only probable if the trophoblast is unusually capable or precocious.[16]

Therapy

There are various means for treating anovular menstruation and other ovarian defects. In many cases it is necessary to adapt the therapy to the patient.

In all instances general health and hygienic measures are indicated. If there is hypothyroidism or even if there is not tolerated doses of desiccated thyroid may be helpful. If there is secondary anemia it should be relieved. If the menstrual flow occurs irregularly it should be regulated for 6 months by administering 0.5 mg. of ethinyl estradiol or 2 to 5 mg. of diethylstilbestrol daily for 21 days followed by 4 daily injections of 10 mg. of progesterone (minimum). Better results may be achieved with as high as 25 mg. of progesterone.[57] Within 7 days after the last injection the menstrual flow should begin. On the first day of the flow estrogen therapy should again be instituted. After 6 months of this cyclic therapy there may be given subsequent or intercurrent therapy.[18]

The equine serum extracts or sheep's pituitary extracts containing gonadotropins may be given intramusculary in 3 to 5 doses of 100 units each daily followed on 2 successive days by 500 units daily. These will stimulate follicular growth but they do not cause the release of the ova which is necessary. Some are now trying experimentally the intravenous injection of the chorion hormone but this is exceedingly dangerous because of toxic and protein reactions. Use of the antihistaminic preparations along with this may be necessary but the entire procedure is not safe. Experiments are now being conducted to determine whether a luteinizing fraction of sheep's pituitary or whether more rapid absorption resulting in less catabolism of the follicle stimulant may be effective in releasing the ova.[16]

Some recommend that the equine gonadotropins be given intramuscularly in doses of 1000 international units each day for 5 days after the menstrual flow has stopped. This was successful in 15 of 34 patients. Equally good results were produced with a combination of chorionic gonadotropin and the pituitary synergist when given in doses of 0.5 to 1 cc. during the five days following the cessation of the flow. Enlarged ovaries with follicular hemorrhage may result from overdosage.[61] Still others advise that one of the equine gonadotropins be given in dosage of 1000 units for 6 days following cessation of flow and repeat during the next 2 cycles. It is recommended that the patient be tested for protein sensitivity although such reactions rarely occur.[60]

Recently another authority reported that in disturbances of the pituitary ovarian hypofunction type with clinical manifestations of sterility, secondary amenorrhea, or dysfunctional uterine bleeding, but without evidence of organic pathology, thyroid medication is employed when indicated and the diet is controlled. When there is no result from this regimen, hormone therapy is tried and radiation therapy when there is no response from the former in six to eight months. It is recommended that hormone therapy receive an adequate trial before radiation therapy is attempted. Equine gonadotropin was administered in doses of 200 to 300 I. U. 4 to 6 times daily or every other day in the first half

of the cycle. Chorionic gonadotropin was combined with it or given in the last half of the cycle. Pituitary gonadotropin was given in some instances. Most of the patients treated by radiation were irradiated alternately over the pituitary and the ovaries, two treatments each, during a two week period. Some patients received similar treatment weekly over a three week period. Conception occurred in 26 (34.2 per cent) of 76 patients treated with gonadotropins. Four of the 26 conceptions resulted in abortion. In the irradiated group, 20 (35.2 per cent) of the 54 patients conceived. Conception took place within two months in 9 patients and within periods up to one year in the remainder. Only 2 aborted. Thirty-seven of the 54 had been resistant to endocrine therapy. Of 17 treated with radiation therapy alone, 8 (47 per cent) conceived.[4]

If the patient repeatedly produces defective ova fertility should be suppressed. In cases where there is a deficiency of progesterone it may be given by injection in doses of 10 to 25 mg. every other day, particularly when the patient is exposed to pregnancy in the postovulatory phase of the cycle. Diethylstilbestrol in doses of 0.25 mg. daily may help to stimulate the corpus luteum. Evidence is available that 5000 to 10,000 units of the chorion hormone, given every other day after ovulation, will stimulate the corpus luteum.[58] In cases where delivery of the ova to the tube is prevented by some deformity or malposition of the ovary expert surgery may be necessary.[10]

7. Menometrorrhagia

Menorrhagia or cyclic bleeding and metrorrhagia or acyclic uterine bleeding are the two types of menometrorrhagia associated with infertility.

A functionally defective corpus luteum is usually responsible for prolonged and excessive flow or too frequent cycles when they are caused by endocrine dysfunction. In some cases they may be due to anovular menstruation which has been considered. Premenstrual biopsy of the endometrium is necessary for differential diagnosis. If the corpus luteum is deficient and there are no other factors responsible for both the menorrhagia and the infertility therapy consists of injection of 500 to 1000 international units of chorionic gonadotropin on alternate days during the 2 weeks preceding expected menstruation. This should be repeated for 3 consecutive cycles. Small doses of thyroid may be helpful even though there is no hypothyroidism. If there is no corpus luteum dysfunction therapy for anovular menstruation should be instituted.[61]

Organic pelvic lesions, hypothyroidism, malnutrition and dyscrasias may cause metrorrhagia so that these must be eliminated if possible before therapy is instituted. If it is established that they are not responsible curettage of the uterine cavity and endocervix and the administration of 500 to 1,000 units of chorionic gonadotropin every other day for a month sometimes will be effective.[61]

If this condition is preceded by amenorrhea low-dosage radiation of the pituitary gland and ovaries sometimes will restore the normal menstrual cycle and fertility. Excessive bleeding may be stopped by curettage of the uterus before radiation is used. In many cases administration of testosterone propionate may serve to control the bleeding and may be preferred to curettage. It should be given in quantities of 25 mg. on alternate days for 3 doses. In any of these cases it is important that a pelvic examination and a double rabbit-test be made to eliminate the possibility of pregnancy.[61]

Artificial Insemination

Artificial insemination has been practiced for infertility since 1866 in the United States. This field has been developed because it is well known that about 10 per cent of all childless marriages result from a deficiency in reproductive powers on the part of one of the partners. In some cases the husband's semen may be used whereas in others that of a fertile male donor may be used. The donor should be between the ages of 30 and 35, intelligent, healthy, and have no hereditary disease or history of venereal disease. He should be similar to the

husband in racial, physical and emotional characteristics. If possible his blood group and Rh factor should be the same as the wife's. The donor should not be related to either partner. Both partners must be acquainted with all the possible aspects, legal and otherwise, and be willing to have this done.[89]

Artificial insemination is indicated when one or more of the following conditions are present: (1) Azoospermia; (2) severe oligospermia not responding to adequate therapy; (3) anomalies of the male genital tract; (4) vaginismus, dyspareunia, deformities in the female; (5) Rh sensitiveness; (6) low hyaluronidase content of the semen; (7) impairment of the cervical canal due to stenosis or infection and not responsive to medical or surgical treatment; and (8) sterility with no definite cause in either partner.[89] Insemination in groups 1 and 5 have given good results and it is definitely indicated in these conditions. Use of hyaluronidase with the husband's semen is a possibility in group 6 and some pregnancies have been reported from its use. Use of the husband's semen is to be condemned and results are usually unsatisfactory except as aforementioned or in congenital anomaly of the male such as hypospadia or in vaginisimus and the other indications in group 4. No definite indication for artificial insemination is presented by groups 7 and 8 and generally results are poor. The process is dangerous as well. Semen should never be placed above the internal os.

The semen is collected in much the same manner as described previously and is inseminated into the female at ovulation time either the day before the drop, the day of the drop or the day after the temperature first rises. It should be done 1 to 3 times per cycle.

In artificial insemination, particularly when a donor is used, there are certain legal complications which will not be discussed here.[89, 90]

Medical Indications for Contraception

Contraception is defined as the prevention of conception or impregnation.[91] Contraceptive devices are employed to prevent the spermatozoa from passing from the vagina to the uterus. There are various methods which are more or less successful in contraception.

Provided there are no religious objections there are certain conditions under which the physician may find it necessary to prescribe some method of contraception, especially when the life or welfare of the patient may be jeopardized by pregnancy or childbirth. It has been emphasized repeatedly that preventive medicine should not be given a restrictive and negative connotation but a positive one. Preventive medicine should be the implement by which health and happiness of individuals are promoted.[92]

If the patient is suffering from a progressive disease pregnancy is definitely a hazard to life. In those cases where religious beliefs are not a factor it is considered not only desirable but ethical to advise the patient to use contraceptive procedures or in some instances to perform a therapeutic sterilization.

The absolute contraindications to pregnancy or childbirth include the following conditions which of course also may be modified dependent upon the individual patient: congestive heart failure; permanent cardiac arrhythmia; hypertension; pulmonary or tricuspid valvular lesions; tight mitral stenosis; marked aortic insufficiency; myocardial anoxia, infarction or fibrosis; rheumatic pancarditis; syphilitic arterial disease; subacute bacterial endocarditis, hyperthyroidism, malignant diseases, tuberculosis and most cases of diabetes.[93]

It is, of course, important that in every case where contraception may possibly be indicated that all of the individual aspects be considered very seriously.

Methods of Contraception

A. Complete Abstinance

The only method of contraception which is wholly effective is that of complete abstinence from coitus. It is quite impractical for the average individual to

adopt this policy and certainly it is not desirable in most marriages.[92]

B. Coitus Interruptus

Coitus interruptus is rather widely practiced. This method involves withdrawal of the penis after the female experiences orgasm but before the male experiences it. In some instances this may be the method favored but it is not entirely dependable and it is likely to cause considerable dissatisfaction and even emotional disturbances in the male partner.

C. Rhythm Method or Periodic Abstinence

The rhythm method or periodic abstinence is based entirely upon the determination of basal temperature which indicates the time of ovulation. Just as this physiologic reaction is employed for promoting conception it can be used also for contraception. Self-denial at certain times of the ovulatory cycle is necessary but generally those who have practiced this method have found it worthwhile. Because of the uncertainty concerning just when the female is most fertile at this time it is best to allow at least 3 days before and 5 days after the supposed ovulation. However, in many cases where the menstrual cycle is very regular this can be adjusted more finely. Unprotected coitus, therefore, is generally safe within a period beginning 3 or 4 days after ovulation until 3 or 4 days before ovulation. It has been stated that 48 hours after ovulation conception is impossible because the ovum has been removed but generally it is preferable to allow 96 or more hours to pass. The shorter limits can be depended upon only when the menstrual period is very regular in its occurrence.

D. Male Sheath

Many are of the opinion that the male sheath or condom is the most reliable method of preventing conception. This is especially true in city areas where its general availability and ease of use may be an advantage. These factors are also true in cases of female timidity, inhibitions or shyness in employing other methods wholly dependent upon her own cooperation. Many couples do not find this method objectionable whereas others do.

E. Douche

In the past great reliance was placed upon the use of pre- or post-coital douches and in many cases these were effective. For this purpose there were and are available a great many douche powders as described on previous pages but it is generally conceded now that these powders are of use chiefly for vaginal cleansing and antisepsis rather than for contraception. It is rather doubtful whether they would be effective during the ovulatory phase and probably their success in the past was due to the fact that dependence was placed upon them only during periods in which conception could not possibly take place. The use of these cleansing and antiseptic agents cannot, however, be de-emphasized for they are of value in so-called "feminine hygiene" and there is no reason in the world why the female patient should not be advised to use them regularly as a means of cleansing just as she takes a bath to cleanse the exterior of her body. If douching is depended upon for contraception it is important that a non-irritating but highly spermicidal solution be used; that the vagina be subjected to slight pressure; and that the area be flushed well. Douching also is disadvantageous in that the spermatocidal chemical is not in place when the sperm enter and it interrupts the relaxation and sleep which normally follow coitus.

F. Diaphragms

Like everything else in any field one might name there are new developments constantly in contraceptive devices for use where it is absolutely indicated. In recent years there have been made available thin latex diaphragms or cervical caps which are designed to extend from the posterior fornix to the retropubic space. In patients where the cervix is enlarged or torn after childbirth considerable skill is necessary to fit the cervical cap properly to provide the most protec-

tion. The diaphragm must fit snugly and comfortably against the lateral walls of the vagina and serve to isolate the cervix from the coital canal. Not only does the diaphragm serve as a mechanical barrier to the spermatozoa but it also holds the jelly or cream, used as an adjuvant, in contact with the cervix. The diaphragms now used consist of a pliable rim with a short pouch hanging down. They are made of latex and sealed in with several layers of latex to the circular rim is a rustproof coil spring which is adjusted for tension. With proper care the diaphragm should last for quite some time.

The diaphragm should not be self-fitted by the patient but should be fitted by the physician after a thorough examination to ascertain whether there are any contraindications to its use. For purposes of determining the proper size diaphragm there are available fitting rings which consist of a latex covered spring comparable to the one in the diaphragm. They are provided in the graduated sizes and may be sterilized by boiling. The sizes generally needed in routine practice range from 50 to 90 mm. Cystocele and a long cervix provide complications in fitting diaphragms. For cystocele the matrisaulus type is indicated. In case of a long cervix the patient must be carefully instructed in the use of the introducers.

There are available several slightly different types of diaphragms from various firms which are accepted by the Council on Physical Medicine of the A.M.A. Some firms also market a diaphragm introducer, a rather simple plastic pronged instrument which is employed to insert the diaphragm with greater ease. It is made in different sizes to correspond to the different sizes of diaphragms. Extractors for the diaphragms are also available. Most introducers incorporate extractors on the opposite end.

The diaphragm is used in conjunction with a spermatocidal cream or jelly and the two together have proven to be quite effective.

G. Jellies and Creams

There are available a number of creams and jellies which are indicated for use with the diaphragm. The measured dose of cream or jelly is placed on the upper side of the diaphragm which comes in contact with the cervix. A portion of the dose is used to coat the rim of the diaphragm. In order to be safe it is advisable not to do this for longer than 12 hours before sexual intercourse. Some recommend that an additional dose of the jelly or cream be inserted with a special syringe applicator. This dose is placed as close as possible to the diaphragm.

Some patients may prefer to use a jelly or cream without the diaphragm. This does provide some degree of protection but it is generally believed that it is not so complete as with the diaphragm and jelly or cream. If the patient feels that this latter method is sufficiently acceptable and overcomes the greater chance of fertility the jelly or cream should be introduced into the vagina with a syringe applicator approximately one hour before coitus. The average dosage is 5 cc. and in most cases the product is made available with a measured dose applicator which introduces the product into the upper vagina under medium pressure. If a diaphragm is used it should not be removed nor should a douche be used for at least 6 hours after coitus in order that the spermatocidal agent has time to immobilize the spermatozoa. The jellies and creams now available usually do not contain lanolin or petrolatum since these substances cause deterioration in the latex diaphragm.

The applicators used for introducing the product into the vagina usually are transparent so that any air bubbles, leading to insufficient dosage, can be discerned. Usually they are made of plastic. If made of glass the walls should be thick enough to prevent breakage in the vagina. A blunt nozzle of some type is used on the end. It should be large enough so that it does not enter the urethra.

The following products are available on the market:

(1) Cream

Phenylmercuric acetate	0.06 per cent
Stearic acid	12.0 per cent
Triethanolamine	0.06 per cent
Glycol monostearate	3.5 per cent
Glycerin	2.5 per cent
Distilled water to make	100.00 per cent

This cream has a pH of 7.3 and is available in 63.5 Gm. collapsible tubes alone or with a transparent plastic syringe which can be screwed onto the tube of cream for insertion. The dosage is 5 cc.

(2) Cream

Lactic acid	0.50 per cent
Stearic acid	15.00 per cent
Sodium lauryl sulfate	0.60 per cent
Glyceryl monoricinoleate	1.50 per cent
Glyceryl monostearate	7.50 per cent
Glycerin	8.00 per cent
Perfume	0.07 per cent
Water sufficient to make	100.00 per cent

This cream has a pH of 4.9 and is marketed in collapsible tubes containing 56.5 Gm., 85 Gm. and 116 Gm. and is a water dispersible, non-fatty stearic acid and glyceryl monostearate cream.

(3) Jelly

Lactic acid	1.50 per cent
Oxyquinoline sulfate	0.05 per cent
Butyl-*p*-hydroxybenzoate	0.02 per cent
Sodium lauryl sulfate	0.20 per cent
Glyceryl monoricinoleate	1.00 per cent
Glycerin	16.00 per cent
Tragacanth	2.70 per cent
Karaya	1.00 per cent
Acacia	1.00 per cent
Perfume	0.04 per cent
Water sufficient to make	100.00 per cent

This water soluble jelly prepared from tragacanth, karaya and acacia has a pH of 4.15 and is packaged in collapsible tubes containing 62.5 Gm., 93.5 Gm. and 128 Gm. For administering this jelly or cream (2) there is available a plunger applicator which can be screwed onto the end of the tube and delivers a 5 cc. dose. A slightly different applicator is also available and has a rubber compression device with a central wire spring so that the dose can be adjusted anywhere between 5 and 8 cc.

(4) Jelly

Phenylmercuric acetate	0.05 per cent
Sodium borate, U.S.P.	3.0 per cent
Methyl-p-hydroxybenzoate	0.05 per cent
Polyethylene glycol of monoisooctyphenyl ether	0.3 per cent
Gum tragacanth	1.8 per cent
Purified Irish moss	1.2 per cent
Glycerin	8.0 per cent
Water sufficient to make	100.00 per cent

This jelly is water soluble and is prepared with tragacanth and purified Irish moss and has a pH of 7.5. It is available in 92 Gm. collapsible tubes. Also supplied is a jelly applicator which screws onto the tube and delivers the recommended dose of 5 cc.

(5) Cream

Phenylmercuric acetate	0.02 per cent
Boric acid	2.0 per cent
Oxyquinoline benzoate	0.02 per cent
Stearic acid	20.0 per cent
Butyl-p-hydroxybenzoate	0.02 per cent
Sorbitan monooleate	5.0 per cent
Polyoxyalkalene sorbitan monostearate	3.0 per cent
Cetyl alcohol	1.0 per cent
Glycerin	5.0 per cent
Perfume	0.015 per cent
Water sufficient to make	100.00 per cent

The above cream is a water soluble stearic acid emulsion with a pH of 4.2 to 4.4 and is available in tubes containing 78 Gm., 113 Gm. and 135 Gm.

(6) Jelly

Phenylmercuric acetate	0.02 per cent
Boric acid	2.0 per cent
Oxyquinoline benzoate	0.02 per cent
Butyl-p-hydroxybenzoate	0.02 per cent
Glycerin	10.0 per cent
Gum acacia	0.6 per cent
Tragacanth	2.5 per cent
Perfume	0.015 per cent
Water sufficient to make	100.00 per cent

This water soluble jelly prepared with tragacanth and gum acacia and having a pH of 4.6 is available in 85 Gm., 128 Gm. and 142 Gm. collapsible tubes. For both the cream (5) and the jelly (6) there is available a 5 cc. dose applicator which screws onto the end of the tube.

(7) Cream

Lactic acid	0.35 per cent
Stearic acid	18.00 per cent
p-chloro-symm.m.—Xylenol	0.10 per cent
p-tert. amylphenol	0.10 per cent
Cetyl alcohol	4.00 per cent
Nacconol	2.00 per cent
Sorbitol	6.00 per cent
Perfume	0.10 per cent
Water sufficient to make	100.00 per cent

The cream for which the formula is given above has a pH of 3.4 and is available in 85 Gm. collapsible tubes.

(8) Jelly

Lactic acid	0.25 per cent
Benzalkonium chloride	0.10 per cent
p-chloro-symm.-m-dimethylhydroxybenzene	0.05 per cent
p-tert. amylphenol	0.05 per cent
Glycerol	15.00 per cent
Gum tragacanth and pectin	3.50 per cent
Perfume oil	0.10 per cent
Water sufficient to make	100.00 per cent

This jelly is water soluble and has a pH of 3.4. It is marketed in collapsible tubes containing 92 Gm. Both cream (7) and jelly (8) are supplied with or without (as are all the others) a vaginal applicator which can be screwed onto the tube and which delivers a 5 cc. dose.

(9) Cream

Stearic acid	24.00 per cent
Boric acid	2.00 per cent
Ricinoleic acid	0.75 per cent
Cetyl alcohol	0.50 per cent
Sodium lauryl sulfate	0.28 per cent
Triethanolamine	0.25 per cent
Glycerin	8.00 per cent
Perfume	0.05 per cent
Water sufficient to make	100.00 per cent

The above cream is supplied in 82.5 Gm. and 123.75 Gm. collapsible tubes and is a nonfatty, stearic acid cream with a pH of 6.

(10) Jelly

Boric acid	3.00 per cent
Ricinoleic acid	0.75 per cent
Oxyquinoline sulfate	0.025 per cent
Propyl-p-hydroxybenzoate	0.05 per cent
Glycerin	5.00 per cent
Acacia	2.00 per cent
Tragacanth	3.00 per cent
Perfume	0.025 per cent
Water sufficient to make	100.00 per cent

Having a pH of 4.5 this jelly is prepared from tragacanth and acacia and is available in collapsible tubes containing 90 and 150 Gm. This product is tested for consistency with the Braun dart penetrometer and has a 50-55 mm. dart penetration. Both cream (9) and jelly (10) are available with or without a vaginal applicator which delivers the recommended dose of 5 cc.

(11) Jelly

Dodecaethylene glycol monolaurate	5.00 per cent
Boric acid	1.00 per cent
Alcohol	5.00 per cent
Carboxymethylcellulose	2.50 per cent
Glycerin	7.00 per cent
Butyl parahydroxybenzoate	0.02 per cent
Perfume	0.01 per cent
Water sufficient to make	100.00 per cent

The above jelly has a pH of 7.8. It is marketed in collapsible tubes of 92 and 143 Gm. This also may be fitted with a vaginal applicator supplied by the same firm.

(12) Cream

Stearic acid	23.04 per cent
Trioxymethylene, U.S.P.	0.04 per cent
Dioctyl sodium sulfosuccinate	0.50 per cent
Sodium oleate	0.67 per cent
Trihydroxyethylamine	7.91 per cent
Hydrous aluminum silicate	2.34 per cent
Perfume (compounded oil of lavender)	
Water sufficient to make	100.00 per cent

This cream has a pH of 7.3 and is a white, non-greasy, water miscible stearate cream. Available also is an applicator which can be screwed onto the collapsible tube containing 75 Gm. and delivering a dose of 10 cc.

(13) Jelly

Ricinoleic acid	0.50	per cent
Hexylresorcinol	0.10	per cent
Sodium benzoate	0.20	per cent
Chlorothymol	0.00769	per cent
Gum tragacanth	1.73	per cent
Starch	0.97	per cent
Hydrochloric acid	0.043	per cent
Calcium hydroxide	0.0264	per cent
Perfume	0.0126	per cent
Water sufficient to make	100.00	per cent

This jelly has a pH of 5.2 and is available in tubes containing 85.35 Gm., with or without an applicator.

The Council on Pharmacy and Chemistry of the A.M.A. has set up various standards for the jelly and cream preparations and for the applicators. In brief the tests must furnish evidence that the incidence of pregnancy is decreased when the product is used. However, the material labeled as "contraceptive" may not prevent conception every time it is used. There are, of course, a great many human factors which enter into the picture. One hundred or more couples should have used the product 6 or more times without difficulty. There should be no subjective irritation or injury or physical damage to at least 12 women using the product. Consistency and formula also are important. A temperature of 27° C. for 12 months should not alter the consistency. The spermatocidal time should be 30 minutes or less on an average from 4 or more tests. In addition, as stated previously, the applicator should be transparent to determine the entrance of air which decreases the dosage.[58]

H. Capsules and Suppositories

In some areas it is difficult to teach the patients to insert and remove the diaphragms and the educational period involves too much time. In view of this a study recently conducted raises the question whether use of the jelly or suppository alone in mass problems is not almost as efficacious. It is granted that if the woman is skilled the diaphragm does add more protection.[94]

Any of the preceding creams or jellies may be employed without the occlusive diaphragm.

There are, however, two products which are specifically designed to be used without the diaphragm but they also may be used with the diaphragm. These are convenient but it is necessary that liquefaction be prompt in order that a jelly or semiliquid is formed which will cover the proper area. If the material is incorporated in a suppository it must melt below body temperature and if in a capsule this must open or melt at body temperature and moisture. Such a product should be used at least 15 minutes before coitus since it is designed usually to dissolve or melt in 10 minutes. As with the other methods at least 6 hours should elapse before a douche is taken after coitus.[55]

The following products in this category are available:

(1) Suppository

Phenylmercuric acetate	0.05	per cent
Glyceryl mono-laurate	10.00	per cent
Tween 61 (Sorbitan monostearatehydroxy polyoxyethylene ether)	89.95	per cent

Each suppository contains 3 Gm. and is hermetically sealed in foil. They are self-emulsifying, water-dispersible and low-melting.

(2) Suppository

Boric acid	0.10	per cent
Zinc sulfocarbolate	0.50	per cent
Hydroxyquinoline benzoate	0.30	per cent
p-Chloro-sym. m-dimethyl hydroxybenzene	0.05	per cent
p-tert. amylhydroxy benzene	0.05	per cent
Beeswax, white	5.00	per cent

Corn starch	9.00 per cent
Perfume	0.20 per cent
Cocoa butter	84.80 per cent

The above formula is incorporated in a 2.25 Gm. suppository.

(3) Capsule

Ricinoleic acid	0.045 Gm.
Propylene glycol monostearate	1.830 Gm.
Propylene glycol	0.183 Gm.
Dioctyl sodium sulfosuccinate	0.045 Gm.
Cholesterin bodies	0.220 Gm.
Anhydrous lanolin	1.100 Gm.
Liquid petrolatum	0.770 Gm.
Yellow petrolatum	0.110 Gm.
Tragacanth	0.214 Gm.

The above formula is encased in a soft gelatin capsule of 4.5 Gm.

In a recent survey of 2,000 private obstetric patients it was found that practically two thirds of the pregnancies had taken place after contraceptive measures had been abandoned in order to initiate conception. In addition to this group one sixth of the patients had not employed contraception at any time. Contraceptive failure was responsible for only 19 per cent of the pregnancies.

The male sheath and the diaphragm were the most popular methods and were used by more than 85 per cent of those employing contraception. These two methods were thought to be more effective than any others and were equally effective.[35a]

I. Permanent Sterilization

In some patients permanent sterilization may be indicated. There are various conditions which may exist and which may make this necessary. It is a serious responsibility for the physician to assume and therefore he and the patient must proceed with care and only after exhaustive deliberation on all problems and effects. If this is done on a woman patient it can be accomplished by tubal ligation for which there are various technics.

If it is thought to be necessary to sterilize the male patient a vasectomy may be done. However, this is very rarely indicated. In some cases where an inconsiderate and selfish husband requests that tubal ligation be done on his wife with no medical reasons involved suggestion that a vasectomy be done on him in most cases halts the controversy.[92]

Conclusion

The problem of infertility and fertility is an important one in the practice of medicine. Many, indeed, are the possibilities in diagnosis and therapy. One of the chief problems the physician has is to educate his patients who consult him on this subject. For this purpose there is available a book which presents the subject in an enlightening fashion for the layman. By having the patient read this book much can be done in laying a foundation for his or her proper understanding of the problem of fertility.[95]

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Free Postgraduate Program of Obstetrical and Gynecological Procedures To Be Presented By Television

A televised close-up of obstetrical and gynecological procedures will be presented for the first time in a week-long graduate teaching program open to all members of the medical profession without charge. Facilities will be available to permit the attendance of 150 physicians.

This new method of instruction will be used at the Lewis Memorial Maternity Hospital in Chicago each day from 9 A.M. to 4:30 P.M. during the week of October 24th to 29th, inclusive. The program will be directed by Dr. Herbert E. Schmitz, Professor and Chairman of the Department of Obstetrics and Gynecology of the Stritch School of Medicine of Loyola University.

Dr. Schmitz will be assisted by a number of visiting professors of Obstetrics and Gynecology.

He will also be assisted by other members of the faculty of the Stritch School of Medicine.

With a number of large screens in the hospital, each attending physician will be able to observe clearly on the television screen every detail of the procedures and hear the discussions carried on between operating surgeons. The operations will be interrupted to show statistical data and material pertinent to the procedures.

Multiple Fractures

Otho C. Hudson, M.D., F.A.C.S., F.I.C.S.
Hempstead, New York

In these days of rapid transit the number of fracture patients is increasing. This is particularly true of the city driver who speeds into the country for a week-end. Many times this pleasure trip ends in the Emergency Ward of a hospital.

The fracture service is part of the orthopedic service in this hospital. Each member is capable of doing fracture surgery independently. In multiple fractures the staff works together in teams. Each team takes a major job to do so that the time required for surgery is a minimum.

The first aid consists of keeping the patient warm, dressings for the wounds, *sufficient* medication to relieve pain, and splintage by the easiest method possible. The dosage of morphine is one-half grain or a combination of hyoscine-morphine-cactoid # 1. As it takes about one hour for the maximum effect of the drug, it should be administered early.

A rapid examination is made. Blood pressure is taken. Function of parts is examined for tendon or nerve lesions. Portable x-rays are taken. Treatment of shock is by plasma, whole blood, and heat. Preparation is made for all surgery to be done. The x-rays are viewed and regimen of treatment planned.

This paper is to emphasize the multiplicity of fractures that can occur in a patient. We shall consider only those patients that have fractures of two or more extremities plus fractures of the pelvis, spine, ribs, or skull.

With these cases, one is confronted with many problems as to the best method of attack. A special treatment for each lesion may be required; but each lesion can be attacked at the same time, so that all the injuries are fixed when the surgery is finished.

The teams do the surgery necessary. The fractures are reduced and fixed and immobilized in their permanent dressings. Complete immobilization is maintained, until osseous healing, by x-ray. Immediate fixation is very necessary in multiple fractures. The shock and pain are much increased by the multiplicity of injuries. The earlier these fractures are reduced the easier this is accomplished, and the less the shock.

All of the cases have a temporary upset of the hematopoietic system with a fall in the red cell count. This occurs even when transfusions are given. The transfusions should be repeated frequently until the red cell count is near normal.

Active, firm, vigorous muscle exercises of all non-immobilized joints and of all muscles of immobilized joints are done hourly twenty times, for ten hours a day from the day of injury. Firm, vigorous, active contractions of muscles prevent joint stiffness in non-damaged joints and atrophy of muscle. These exercises keep the normal muscle tendon sense functioning. Exercises must be done as every injury temporarily produces a short circuit in muscle tendon sense with the patient quickly forgetting how to use his muscles.

The mortality rate of multiple fractures is higher than for single lesions. All pa-

From the Orthopedic Service, Nassau Hospital, Mineola, N. Y.

TABLE I

CASE NO.	HOSPITAL NO. SEX	AGE	CAUSE OF INJURY	DATE OF INJURY	FRACTURE SITES	TREATMENT		FOLLOW UP	
						TYPE	DATE	DATE	END RESULT
31	77351 Female	48	Automobile accident	Dec. 22, 1938	Neck left femur Left radius Left ribs (5th through 9th) Collapsed lung	Smith-Petersen nailing neck femur Closed reduction left radius	Dec. 28, 1938	May 12, 1939	Marked deformity hip and knee Forearm fair function
32	81504 Male	18	Automobile accident	Sept. 26, 1939	Compound skull Shaft left femur Left patella Left radius and ulna Right metacarpals Right phalanges Right clavicle Right carpus (dislocation)	Skeletal traction to femur Closed reduction metacarpals, etc. Closed reduction radius and ulna	Sept. 26, 1939		Patient died 48 hours after admission
33	82749 Female	65	Automobile accident	Nov. 25, 1939	Skull Right humerus (compound) Right tibia and fibula, (compound) Left tibia and fibula (compound) Sternum Left ribs (2nd through 7th)				Patient died 3 hours after admission
34	83876 Female	22	Automobile accident	Jan. 1, 1940	Fracture dislocation 12th dorsal vertebra with complete transverse myelitis Right humerus Left Colles'	Closed reduction all fractures Laminectomy later	Jan. 1, 1940		Patient died 18 months later of urinary sepsis
35	83369 Female	60	Automobile accident	Jan. 7, 1940	Concussion Maxilla Right ribs Right tibia and fibula (compound) Right metacarpals Left femur (compound, supracondylar) Left tibia	Debridement and fixation with pins, of tibia Skeletal traction to femur Closed reduction of other injuries	Jan. 7, 1940		Unknown
36	86202 Male	20	Automobile accident	July 21, 1940	Skull Right femur (compound) Right and left tibia and fibula		July 12, 1940		Patient died 11 hours after admission
37	87286 Male	19	Automobile accident	Sept. 17, 1940	Concussion Left femur (compound) Left tibia and fibula (compound) Right Colles'	Traction Debridement	Sept. 17, 1940		Patient died 9 hours after admission

—Continued on following page

TABLE 1 (continued)

CASE NO.	HOSPITAL NO. SEX	AGE	CAUSE OF INJURY	DATE OF INJURY	FRACTURE SITES	TREATMENT		FOLLOW UP	
						TYPE	DATE	DATE	END RESULT
38	89612 Male	32	Fell from train	Jan. 5, 1941	Concussion Left tibia and fibula (compound) Right tibial plateau Right hip (dislocation)	Debridement and traction to leg Closed reduction of other fractures and plaster applied	Jan. 5, 1941	Apr. 4, 1943	Limitation motion knees Arthritis right hip
39	90579 Male	48	Automobile accident	Apr. 5, 1941	Skull Laceration of brain Subdural hematoma Right humerus Right and left tibia and fibula (compound)	Trephine skull Debridement and open reduction of fractures Plaster applied	Apr. 5, 1941		Patient died 5 days after admission
40	92267 Female	60	Automobile accident	July 10, 1941	Skull Ribs (multiple) Left tibia and fibula (compound) Left humerus (compound) Right tibia Right radius	Debridement Open reduction of compound fractures Closed reduction of other fractures Traction to left femur	July 10, 1941		Patient died 4 days after admission of pneumonia
41	92555 Male	39	Automobile accident	July 24, 1941	Concussion (Ribs (multiple) Left hip (dislocation) Right radius	Closed reduction of all fractures	July 24, 1941	Aug. 9, 1942	Good function of hip and wrist
42	95307 Female	59	Automobile accident	Dec. 31, 1941	Skull Ribs (multiple) Left transverse processes vertebrae Left neck of femur (oblique) Right tibia and fibula (compound) Pelvis	Traction to left femur Debridement and pin fixation right leg Subtrochanteric osteotomy femur later Bone graft to tibia later for nonunion Closed reduction spine	Dec. 31, 1941	June 10, 1945	Limitation motion in right knee and ankle Flexion to 60 degrees left hip
43	103079 Male	44	Automobile accident	Jan. 10, 1943	Skull Patella bilateral (compound) Nose, frontal bone, maxilla and zygoma (compound) Ribs (multiple)	Debridement and open reduction of patellae Plaster applied Facial injuries treated by Nose and Throat Dept. same day	Jan. 10, 1943	Feb. 17, 1942	Patient died suddenly when sitting up of pulmonary embolism
44	104957 Male	48	Automobile accident	Apr. 10, 1943	Skull Right and left tibia and fibula (compound) Right femur (compound) Pelvis				Patient died 1½ hours after admission

TABLE I (continued)

CASE NO.	HOSPITAL NO. SEX	AGE	CAUSE OF INJURY	DATE OF INJURY	FRACTURE SITES	TREATMENT		FOLLOW UP	
						TYPE	DATE	DATE	END RESULT
45	107602 Male	10	Automobile accident	Aug. 20, 1943	Right femur (compound Right tibia and fibula Right humerus Spinous process of 6th cervical vertebra	Closed reduction of humerus Debridement and fixation of right leg in Roger Anderson apparatus and plaster spica Trephine skull next day	Aug. 20, 1943	June 10, 1	Excellent function
46	107621 Male	50	Fell from roof	Aug. 21, 1943	4th lumbar vertebra (compression) Left os calcis Left tibia and fibula Right metatarsals Right carpus (dislocation)	Closed reduction spine plaster applied Closed reduction leg and os calcis with pins Closed reduction foot Excision proximal row of carpus 3 days later	Aug. 21, 1943	Aug. 21, 1941	Limitation motion in ankle Loss 30% motion in wrist
47	124270 Male	73	Automobile accident	Oct. 14, 1945	Skull Right tibia and fibula (compound) Left humerus (compound) Left femur (compound) Pelvis				Patient died 1 hour after admission
48	Female	22	Automobile accident	Apr. 29, 1946	Concussion 3rd lumbar vertebra (compression) Left femur Right Pott's Right metatarsals Pelvis	Closed reduction of all fractures Open reduction of femur	Apr. 29, 1946 May 18, 1946	Dec. 12, 1948	Complete function except left knee which is limited at 110 degrees flexion
49	Male	36	Airplane accident	Aug. 25, 1946	Fracture skull Fracture left clavicle Fracture ribs Fracture right radius Fracture left 4th finger Fracture right tibia and fibula (compound) Fracture left tibia and fibula (compound) Fracture left os calcis Fracture right os calcis Fracture left astragalus Fracture right metatarsals Fracture left metatarsals	Open reduction of all injuries	Aug. 25, 1946	Jan. 1949	Fusion both angles Flexion of knees to 90 degree bilateral

tients unless moribund should be treated as if they would recover.

There were forty-nine patients with multiple fractures admitted to the Nassau Hospital from January, 1930, through August, 1946. Thirty cases were reported in 1940. This report is of nineteen additional cases.

Table # 2 gives the number of cases and deaths by years in the period from 1938 through 1946.

TABLE 2

YEAR	NUMBER	LIVING	DEATHS
1939	3	1	2
1940	4	1	3
1941	5	3	2
1942	0	0	0
1943	4	2	2
1944	0	0	0
1945	1	0	1
1946	2	2	0
Total	19	9	10

There was a decrease of cases of multiple injuries during World War II because of the lack of automobile traffic.

Table # 3 is an analysis of the deaths.

In the period from 1925 through 1929, shock only was treated with temporary fixation of the fracture. The shock persisted for three or more days with the patient in continual pain from lack of adequate immobilization. When the patient's condition had improved, repeated attempts were necessary to obtain a satisfactory reduction of the fracture. Ofttimes satisfactory reduction could not be obtained with consequent increase in the permanent disability. In the period from 1930 through June, 1934, the patients were similarly treated with the same end result.

In July, 1934, immediate and adequate fixation of fractures was begun. The patient was more comfortable due to the complete immobilization of the fractures. The shock was less with recovery in twenty-four hours. The end result was a better anatomical and functioning extremity.

Of the forty-nine cases, thirty-one are living and well and eighteen are deceased. Five of the eighteen deaths occurred after four days. We believe early fixation and adequate surgery do not increase the mortality.

Conclusions

Multiple fractures should be treated as single fractures immediately.

A trained team is needed for each major fracture.

Repeated transfusions are a must.

Hyoscine-Morphine-Cactoid analgesia is a must.

Early treatment secures better restoration of the injuries.

Hourly, vigorous muscle exercises throughout assures function.

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TABLE 3

PERIOD	NUMBER	TIME OF DEATH	CAUSE OF DEATH
1939	2	Expired in 48 hours	Shock
1940	3	Expired in 18 months	Urinary sepsis
		Two expired in 48 hours	Shock
1941	2	Expired 4 days	Pneumonia
		Expired 5 days	Laceration brain
1943	2	Expired 37 days	Embolism
		Expired in 48 hours	Shock
1945	1	Expired in 48 hours	Shock

Vitamin A in Acne Vulgaris

Frank C. Combes, M.D.
and
Rose B. Saperstein, M.D.
and
Irving Distelheim, M.D.
New York, N. Y.

The apparent efficacy of vitamin A in improving certain types of acne vulgaris has aroused a good deal of discussion as there are some features that are obscure and the logic of its use in this disease has never been scientifically established. Straumfjord[1], on the basis of noting improvement in patients with follicular hyperkeratosis following vitamin A therapy drew a parallel with the basic acne lesion, a hyperkeratosis of the pilosebaceous follicle. He treated 100 cases of acne with vitamin A by oral administration of 100,000 units daily as a dietary supplement. Seventy-nine became free or nearly free of lesions and only three were unimproved; the rest were equivocal. Obermayer and Frost[2] also treated a series of cases with vitamin A because of its beneficial effects on some cases of diffuse and follicular keratinization. In this series they found that those patients with acne characterized by follicular plugging responded most readily. Along this same type of observation Saunders[3], while treating himself with 100,000 units of vitamin A daily for chronic sinusitis, noted on two separate occasions remarkable improvement in acne vulgaris with which he was also afflicted, as well as a decrease in size of two plantar calluses to about one half their original dimensions.

Stannus[4] in an extensive review of the literature and from personal observations was of the opinion that vitamin A deficiency was only one of many factors in the production of hyperkeratotic lesions. However, Getz[5] was able to demonstrate skin changes with a vitamin A deficiency diet after four to six weeks. These were reversible and disappeared within one month of normal diet.

The effect of vitamin A in inhibiting thyroxin and effecting a lowering of the basal metabolic rate, with a consequent increase in lipoid, remains controversial. Struck and Sheets[6] stated that the supposed effect of vitamin A in reducing the metabolic rate was questionable. In their experiments only a slight lowering was observed in rats fed with thyroid first. Baumann and Moore[7] also found no evidence for any actual inhibition of thyroxin by vitamin A. On the other hand, Sadhu and Brody[8] report that vitamin A depressed the basal metabolic rate and reduced the weight of the thyroid in rats. It also tended to neutralize the metabolic effects of injected thyroxin and decreased the size of the thyroid in thiouracil-treated rats.

In recent years many dermatologists have included varying doses of vitamin A in the routine treatment of acne vulgaris. Few have been able to prescribe the vitamin without the addition of x-ray and/or local therapy.

This report is based on observations made on 36 consecutive patients with acne who came for treatment to the Out-Patient Department of Bellevue Hospital. This

From the Department of Dermatology and Syphilology, New York University-Bellevue Medical Center. Service of Dr. Frank C. Combes.

TABLE I

PT.#	AGE	SEX	DOMINANT LESIONS	MONTHS OF APEXOL	REMARKS
1	17	M	Papules, pustules	4	Fewer new lesions, general appearance better.
2	14	F	Comedones, papules, pustules with seborrhea	8	Acne very well controlled, seborrhea unimproved.
3	16	M	Comedones, pustules of back	7	Practically no lesions at end of observation period.
4	18	F	Severe cystic papulo-pustules	3	No change.
5	14	M	Comedones, papules	5	During period of "out of stock" had exacerbation, while on Apexol very few new lesions.
6	14	F	Comedones, papules with seborrhea	7	No lesions at end of observation period. Seborrhea unchanged.
7	20	F	Papules	4	Very few new lesions while on therapy, exacerbation during "out of stock" period.
8	14	M	Comedones, papules	7	Subjectively and objectively better, exacerbation when not on Apexol.
9	27	F	Comedones, papules, pustules, cyst with seborrhea	6	Fewer lesions while taking vitamin, exacerbation when not taking vitamin, seborrhea unchanged.
10	15	M	Comedones, papules	5	Exacerbation while not on drug, very few new lesions, seborrhea unchanged.
11	19	M	Papules, pustules	2	No change.
12	25	F	Comedones, papules	6	No change.
13	24	F	Comedones, papules	7	Premenstrual exacerbation, Comedones almost gone.
14	26	F	Comedones, papules	2	No change.
15	24	F	Comedones, papules, pustules with seborrhea	12	Very few lesions at end of treatment, seborrhea persists.
16	21	F	Cysts, papules	24	Does well with vitamin, many more lesions when not taking vitamin.
17	11	F	Comedones, papules, pustules	3	Very few lesions after 3 months treatment.
18	25	F	Cysts, papules	6	No change.
19	18	F	Papules, pustules	3	No change.
20	13	F	Comedones, papules	12	Very few lesions while taking drug, many lesions while not on drug.
21	19	M	Papules	6	No lesions after third month of treatment.
22	19	F	Comedones	3	Great improvement, very few comedones left.
23	15	F	Comedones, papules	3	No change in the number of comedones, seborrhea better.
24	14	F	Comedones, papules	5	Very good result, no lesions when last seen.
25	19	F	Comedones, papules	2	Face unchanged, back almost smooth.
26	17	M	Comedones, papules, pustules	3	Few new lesions, not too much change.
27	16	M	Comedones, papules, pustules with seborrhea	3	Almost no comedones, occasional new lesions, seborrhea persists.
28	17	F	Comedones, papules, with seborrhea	7	Exacerbation when not on vitamin, greatly improved on vitamin. Very few lesions.
29	15	F	Comedones, papules, pustules, with seborrhea	7	Great improvement in acne, seborrhea unchanged.
30	22	M	Comedones, papules, with seborrhea	12	No change.
31	14	M	Comedones	2	Comedones gone, very good result.
32	18	F	Comedones, papules, pustules	4	Much improvement.
33	14	M	Comedones, papules	3	Very well, practically clear of comedones, occasional new lesions.
34	18	F	Comedones, papules, pustules	6	Very good result, exacerbation when no medication available.
35	18	M	Papules	3	Good results.
36	20	M	Papules, cysts, with seborrhea	5	Good result, seborrhea persists.

study was started in January, thus eliminating the possible beneficial effects of sunlight, well known to the patient and doctor.

Procedure

Patients received two capsules daily (100,000 units) of natural vitamin A.* The product used is a natural product, extracted from the liver of the soupfin shark, and contains no vitamin D. The patients were seen every two weeks and received *no other therapy*, nor were they placed on any specific diet.

(See Table I)

Discussion of Results

Thirty-six patients (14 males and 22 females) ranging in age from 11 to 27 years were treated.

The patients presented moderate to marked seborrhea associated with acne. Nine noticed no change in the seborrhea even though the acne was greatly improved. In one patient, the reverse was true. In addition to the lesions of acne vulgaris, one man had many hyperkeratotic lesions of the back which almost completely disappeared after two months of treatment.

Twenty-nine patients were greatly improved over 3 to 24 months of vitamin A; 7 patients were unchanged. No patient experienced an exacerbation. (During a period in which the medication was unavailable, 10 patients experienced an increase in the number of lesions, but again improved after readministration of the vitamin).

Close scrutiny of Table I elicits several interesting facts. It appears that young patients with comedo-papular acne respond most favorably to administration of vitamin A. Patients past the age of 20, and those in whom the principal lesions were pustules and cysts, failed to respond.

Of the patients who reported no change, many were observed for only 2 to 3 months. Careful study of their case records showed that they frequently responded to continued treatment though the results were not noted early. Most all patients followed for 6 months or more reported some change. A 15-year-old girl seen in the Out-Patient-Department of Bellevue Hospital in April 1946 presented comedones, papules, pustules and severe seborrhea of the face and forehead. She was observed every 2 weeks. In July she reported no change in severity of the lesions. However, by November (7 months later), she had extremely few papules or pustules, and practically no comedones.

Summary

This report deals with the use of vitamin A in the care of the patient with acne vulgaris. Pertinent literature is reviewed and a detailed report offered representing treatment of 36 cases of various types with 100,000 units daily, unassisted by other medicinal or dietary measures.

Twenty-nine patients improved; seven were unimproved; and none experienced exacerbations as a result of therapy. Patients aged from 11 to 19 years reported the greatest benefit.

The comedo type improved most rapidly. Seborrhea was not affected and the deep pustular type remained unchanged.

Most beneficial results were observed after three months of treatment.

Temporary omission of vitamin A administration was accompanied by exacerbation of the acne and its readministration by resumption of improvement.

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* The vitamin A used in this study was Apexol. It was supplied by J. B. Roerig and Company, Chicago, Illinois.

CASE REPORTS

Wolff-Parkinson-White Syndrome

—in a woman, associated with paroxysmal ventricular tachycardia

Robert E. Scherb, M.D.

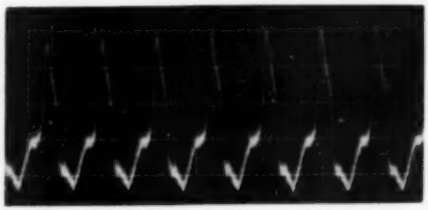
Bakersfield, California

A description of the so-called "Wolff-Parkinson-White" syndrome was published in an original article in 1930. This was not the first time that this peculiar phenomenon was noted — but rather the first time it had been fully written up and reported in medical journals as such. In this article, Wolff - Parkinson - White suggested that it was a type of "functional bundle branch block," and found that it occurred in young individuals, predominantly male, whose hearts showed no evidence of cardiac pathology. Further, that the tachycardia was of a supraventricular type, i.e., flutter, fibrillation, or auricular tachycardia of paroxysmal type. Further, it was brought out that the normal rhythm was restored by a "release of the vagal block" by exercise, atropine, or just returned to normal spontaneously. The characteristics of the electrocardiogram in such cases were: 1. A short P-R interval of .10 or less. 2. Q.R.S. complex was wide, resembling bundle branch block with a slurring of the upstroke. 3. A T wave opposite to Q.R.S. as seen in bundle branch block.

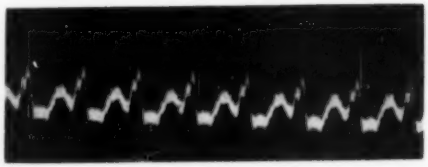
In 1933 Wolferth & Wood pointed out that Wilson-Wedd & Hombeger & Pezzi had reported cases of Wolff-Parkinson-White syndrome prior to 1930 when the original Wolff-Parkinson-White article was presented. They showed quite clearly and in some detail why the original belief of a functional bundle branch block as promulgated by Wolff - Parkinson - White was untenable. They stated that the abnormality of the Q.R.S. complex consists, "not of a block or delay, but an actual early arrival in the ventricular muscle of impulses from the auricle."

Pezzi's belief that it was an "irritative lesion in the paraseptal region of the auricles" was decried by reason of the fact

Ventricular flutter August 21, 1947



Lead I



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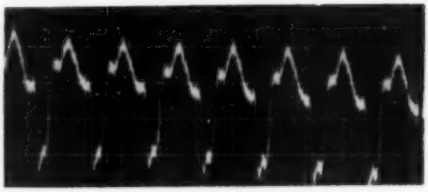
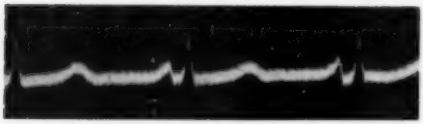


Lead III

From the Scherb-Moore Clinic

(Wolff-Parkinson-White Syndrome) Ventricular flutter controlled by quinidine
September 4, 1947



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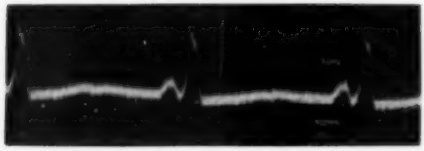

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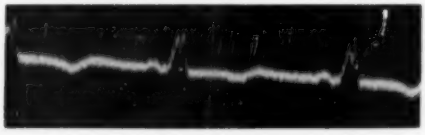

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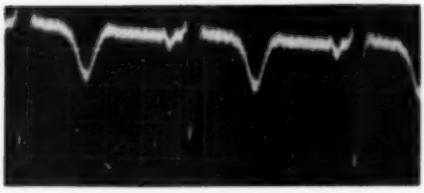

Lead IV

that normal configuration of P waves was present during the abnormal findings in the electrocardiogram, and when the P-R interval was shown to be returnable to normal by use of exercise and atropine, Holzman & Scherf in 1932 put forth the hypothesis of accessory pathway of auricular ventricular conduction; revived the belief by Kent of an aberrant pathway consisting of muscle fibers between the auricles and ventricle as seen in the lower animals, as the rat and rabbit. These findings favored the hypothesis of Wood-Wolferth & Geckeler that there existed such a pathway outside the Bundle of His which would allow an early aberrant conduction from auricles to ventricles.

In 1942 Butterworth & Poindexter, by the use of an amplifier to produce electrically abnormal short circuiting pathways between auricle and ventricle, reproduced at will the characteristics of the electrocardiogram curve as described by Wolff-Parkinson-White.

In 1943 Wood-Wolferth & Geckeler showed convincing microphotographs of aberrant muscle fibers connecting the right lateral border of the heart between the right auricle and right ventricle.

The cases reported since the Wolff-Parkinson-White original article were three as reported by Levine in 1941—who added the original observation that besides the supraventricular tachycardias there also existed those cases that were marked by having paroxysmal ventricular tachycardia. Since then Wood & Leo presented a case in 1946; as did Klainer & Joffe; each case had the tachycardia of the ventricular type.

It has been interesting that the reported cases have been of men in these instances.

The present case is reported in the light of the fact that it is a woman, that she had her symptoms for thirty odd years, and present findings show that it also exhibits the tachycardia of the ventricular type.

We do not wish to clutter the literature with another theory, but rather to chronologically present the history of this syndrome to the present time, giving the theory that has held most consistently to the facts at hand, supported by strong experimental evidence.

Case

History: Patient is a lady sixty years old, who states that for the past thirty-seven years she has had attacks of "racing" of the heart that would last from eight to ten hours, with some pain over her heart. She would have these spells in the early years about once every six months, and they have been becoming more frequent until during the last couple of years they have been occurring once every three weeks and persisting for twelve hours or so. Each attack starts with a sudden palpitation of the heart which is very rapid, patient becomes dyspneic, and at the present time a substernal

pain is experienced with the chest, neck and left arm involved, feeling as though they were going to be "split wide open." Patient is unable to lie down or sit down because of "pressure of the abdomen against her heart," and has to stand during these periods. Then she will have paroxysms of coughing, and at times the heart will suddenly return to its normal rhythm.

Past History: No other serious illnesses or operations. Menopause at the age of fifty-two; no bleeding since; no menopausal symptoms. The rest of her systems were negative.

Family History: Mother and father and her sister all have "palpitations." At the present time she states that her sister, who is still living, has a very enlarged heart, and she also has paroxysms of the heart with quite rapid racing. (Attempts to test the family at the Clinic failed).

Examination: Examination at the time of her entry on June 10, 1947, showed a blood pressure of 80/90, and rate of 150 per minute, and patient had taken no medication. She is a stout, white female, sixty years of age, in very great distress, saying that she "did not want to sit down."

Head:

E.E.N.T.: Negative.

Chest:

Heart: Enlarged to the left, fast, regular, 150 per minute, no murmurs noticed.

Lungs: Clear, no spaces.

Abdomen:

No masses, no enlargement.

Extremities:

No swelling, no discoloration.

Laboratory Work:

Kahn & Wassermann: Negative.

Urine: Sp. Gr. 1.029; Alb. negative; Sug. negative; White Blood Cells 8-10; Granular casts; W.B.C. 0.2%.

Blood: RBC 5,180,000; WBC 17,700; Hb. 15 grams; Eosins 2; Stabs. 7; Segs. 54; Lymphs 33; Monos. 4.

X-Rays: (Chest)

X-rays showed generalized heart enlargement.

Topic Summary:

The history of the Wolff-Parkinson-White syndrome is given with a review of the literature to date—with regard to an apparently proven theory of causation.

Discussion: This case, as presented, conforms to those first observed by Levine, in as much as the patient had a tachycardia of ventricular type. However, this patient is one of the first to be reported of a woman. The history shows that it began when she was quite young and for no apparent reason, as she was in good health at the time. Over a period of years the repeated cardiac insults gradually weakened the heart, both from a myocardial and mayhap vascular (coronary) respect, so that at the present time each attack is practically a cardiac crisis.

Summary: A case (7th so reported) of a woman patient (1st so reported) with short P-R interval and long Q.R.S. complex typical of Wolff-Parkinson-White syndrome—following an attack of paroxysmal ventricular tachycardia.

This report shows that this condition if persistent through life can become progressively worse and result in a cardiac emergency.

This case further shows that these patients can be controlled quickly and constantly by the administration of quinidine.

Addendum: Six months after diagnosing this case, the patient got up quickly to answer the doorbell; she complained of a pain in her chest and died before seen by a physician. (An autopsy was refused.)

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2300 Truxton Avenue

CASE REPORTS

The Neurosurgical Relief of Intractable Anginal Pain

Report of a Case

Bernard Farfel, M.D.

Houston, Texas

The medical management of the anginal syndrome has been frequently outlined. The course and therapy of the average patient are fairly well understood, and the pain is more or less satisfactorily controlled. There are occasional cases, the figure has been given as one per cent,[1] where medical management fails to give any measure of adequate relief. Considering the frequency of the condition, and the certainly rather large number of intractable cases occurring, it is to be hoped that either the efficacy of medical care will increase, or more surgical knowledge and skill will be brought to bear to relieve these very unfortunate patients.

From the author's experience, it appears that the patient with anginal syndrome severe enough to justify surgical relief is less than 1 per cent. This is merely an impression. However, the occasional patient who requires relief should receive it.

The surgical approach to the treatment of angina was expressed first by Francois-Franck[2] in 1899. He suggested cervical sympathectomy for relief. Jonnesco[3] in 1916 put these suggestions into practice. With a mortality rate of 20 per cent, and adequate relief afforded to 60 per cent, this procedure did not hold wide appeal. Since that time, with the continued advance in surgical techniques, and fuller knowledge of the anatomy involved, there has been a progressive increase in the percentage of cases relieved. Associated with this advance in knowledge has been a decrease in the mortality rate, given as 5 to 10 per cent by White.[1]

The surgical approach was modified and implemented by Swetlow[4] who used the alcohol paravertebral block, and Mandl[5] who used procaine hydrochloride.

The anatomy of the nerve supply involved is not completely agreed upon. The description given here, in brief, is patterned according to that given by Donaldson.[6] The rationale of the therapy is to nullify the ability of the nerves to send constrictor impulses to the coronary vessels. The superior, middle, and inferior cardiac nerves each arise from the superior, middle, and inferior cervical sympathetic ganglia respectively. They each carry efferent fibers. Also to be reckoned with are nerves connecting with the second to fifth dorsal sympathetic ganglia. These nerves course along the posterior mediastinum to reach the cardiac plexus. They carry both motor and sensory fibers. It is contended that the fibers originating from the fourth dorsal ganglion are most important in this consideration. In fact, if the fourth dorsal is blocked, the vast majority of cases will be relieved. White, et al.[7] have shown that section of both vagi in dogs, or of the upper intercostal nerves, or resection of both stellate ganglia are inadequate procedures. When removal of the stellate and upper four dorsal, or section of the upper five dorsal spinal roots was carried out, cardiac pain could be blocked.

In human beings, there are three surgical approaches.

They are first, the use of procaine or alcohol to block the sympathetic ganglia. Although the results are not as long lasting, the advantages are twofold. The patient is almost necessarily a poor surgical risk, and further, even if the effect lasts but months to a few years, the prognosis of the underlying disease is such that life expectancy is not too great. Therefore, any extended time of relief is very much worth while.

The second approach is resection of the dorsal ganglia concerned. Although it gives more permanent and positive results, it involves greater surgical risk with our present surgical technique.

The third approach is laminectomy with division of the upper 4 thoracic sensory roots. White[1] summarizes 30 cases reported by six different surgeons. There were 3 deaths, but because of the more extensive surgery involved, it was reserved for the best surgical risks.

The failure to take advantage of procedures that could bring such necessary relief is reflected by the relative paucity of case reports.

We are concerned in this report with illustrating marked relief in a severe case of angina decubitus. The patient expired some time later during an apparently painless coronary thrombosis. This occurred while the patient was inactive and certainly would have occurred, if anything, even sooner without the interruption of vasoconstrictor impulses and relief of pain.

Case Report:

The patient, I.S.G., was a 60-year-old white retired business man, whose history goes back to 1941 when he first noted a pressure under his sternum while walking against a cold wind. Since then, excitement, cold, and exertion have been noted as precipitating factors. Because of the effect of aggravation, he had retired from his business in 1941. At times, he had also suffered from some dyspnea, nocturia, palpitation, and heartburn. He had discontinued smoking prior to the onset of his disease.

He had been examined in 1945 at which time the diagnosis of hypertension and coronary insufficiency had been made. From 1945 until 1948, he had been treated for anginal syndrome, hypertension, gout, chronic prostatitis, ureteral calculus, and hay fever. During this period of time, with the usual diets, vasodilators, and rest his condition deteriorated rapidly.

In August 1948 he was examined at the Mayo Clinic. In résumé the findings were:

"The patient's weight was 141 pounds; systolic blood pressure was 195 and diastolic 120 mm. of mercury. Physical examination of the heart, lungs, and abdomen was essentially negative; the prostate was moderately enlarged and benign. The retinal vessels showed the usual narrowing and sclerosis as seen in hypertension; these were of moderate degree. Vitreous opacities and posterior polar opacity in the lens of the right eye also were seen. Examination of the ears, nose and throat was negative.

"The only abnormal findings on urinalysis were occasional erythrocytes and leukocytes per microscopic field; blood counts and routine serologic test for syphilis were negative; the sedimentation rate was slow. The concentrations of blood urea, uric acid and cholesterol were, respectively, 34, 7.6 and 167mg. per 100 c.c. Roentgenograms of the chest, right foot, esophagus, stomach and duodenum were normal. Electrocardiographic tracing was as follows: Rate 90, sinus rhythm, notched QRS in lead II, left axis deviation, diphasic T waves in lead I, notched P waves in lead III, lead V-1 showed diphasic T waves, V-3 positive T waves and V-5 inverted T waves, depressed S-T segment and lengthened Q waves. Excretory urogram did not disclose abnormalities of the upper urinary tract.

"The diagnosis was hypertensive and coronary heart disease with severe angina pectoris, benign prostatic hypertrophy, and gout."

Upon his return from the Mayo Clinic, the anginal pains continued to increase in severity, and troubled him greatly even

while at rest. He was admitted to St. Joseph's Infirmary November 22, 1948. It is of interest to note that his therapy included complete bed rest, phenobarbital 4 times daily, nitroglycerin p.r.n., codeine, pantopon, atropine, nembutal, aminophyllin suppositories, oxygen, sodium amytal, digitalis, mercuhydrin, vitamin B complex, vitamin C. At home he had already been taking vitamin E, and mannitol hexanitrate as well as sedation.

The day of admission at 2:45 P.M. he was given an injection of one grain of codeine. At 3:45, he was given pantopon one-third grain, with atropine 1/150 grain. At 4:30 P.M., he received a half-grain of phenobarbital. At 7:30, the pantopon and atropine were repeated. At 10:45, he was again given codeine. At 12:30 A.M., he received panopon-atropine. At 1:10 A.M., he had a 7½ grain aminophyllin suppository. At 4:00 A.M., he had an injection of sodium phenobarbital 2 grains. During this period he also received oxygen constantly, and was but little relieved by his medication, having almost constant precordial pain which radiated into both arms.

On November 23, 1948, Dr. John Roberts Phillips injected both stellates and the upper two dorsal ganglia on both sides with novocain. The patient went into shock immediately following the injection. The blood pressure dropped to 70/50, and he became unconscious. He was given an ampule of coramine, and 7½ grains of caffeine intravenously, and recovered completely in about 8 to 10 minutes.

Following the injection, the patient's only complaint was nausea. The pain was relieved. The patient received only one injection of pantopon the following day. The patient remained in the hospital in a somewhat mentally depressed state.

Accordingly, on November 30, 1948, he was seen by a psychiatrist in an effort to boost his morale. Mentally, he was very clear, well-oriented, but discouraged by his long-standing illness. During his psychiatric interview he complained of some dyspnea and his pulse became weak and thready. No pain was experienced. After about 3 minutes, the patient expired.

Comment:

The author feels that this man was a good subject for surgical treatment of the anginal syndrome. His extreme suffering, the failure of medication to relieve him, the deterioration of his condition, the induction of depression all speak for the valid assumption of the risks involved in surgical therapy.

The episode of an apparent terminal coronary occlusion is but the expected occurrence in angina pectoris. I do not believe it was hastened by his injection. The absence of pain is the common result of interruption of the nerve pathways. This report is a plea for making surgical therapy available more often to those in whom severe anginal pain has led to extreme suffering.

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318 Medical Arts Building

National Gastroenterological Association

The National Gastroenterological Association will hold its 14th Scientific Session at the Somerset in Boston, Mass. on October 24-26, 1949.

At the Annual Banquet to be held at the Somerset, the winner of the National Gastroenterological Association's 1949 Prize Award Contest will be announced.

Immediately following the Convention on October 27, 28, 29, 1949, the Association is sponsoring a course in Gastrointestinal Surgery at the Boston City Hospital.

Further information concerning the program and details of the course may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

CASE REPORTS

A Case of Idiopathic Thrombocytopenic Purpura Manifested by Epistaxis

J. Jeffrey Higgs, M.D.
and
Max Kimbrig, M.D.
Huntington, N. Y.

A 48-year-old Negro female was admitted to Huntington Hospital on March 14, 1949, with a presenting complaint of epistaxis which had persisted for over 24 hours. About six days prior to admission she had had a profuse nasal hemorrhage which checked spontaneously, and she gave a history of recurrent spontaneous bouts of epistaxis over a period of approximately two months. These hemorrhages were only slightly distressing and never sufficiently severe to have her seek medical assistance.

She had advanced hypertrophic arthritis for eleven years, and was able to get about only for very short distances with the aid of a cane. Past history further revealed a hysterectomy and bilateral salpingo-oophorectomy in 1934 followed by two courses of anti-luetic therapy with neoarsphenamine and bismuth. She never received any gold therapy for arthritis.

Physical examination showed an acutely ill woman in a state of shock. B.P. was unobtainable. Temperature 101, pulse 130, respiration 30. There was very obvious profuse hemorrhage, all of which seemed to be coming from a small area on the right side of the septum just inside the nasal orifice. Further examination was deferred in order to treat the hemorrhage and shock. Initial laboratory work showed a red blood cell count of 1,560,000, hemoglobin 4.1 Gm. and white blood cell count of 26,250 with 71% neutrophils, 27% lymphocytes and 2 mononuclears. Coagulation time was 3 minutes, 3 seconds and bleeding time was one minute, 3 seconds Urine was normal.

The bleeding area was located by the E.N.T. consultant and checked with cocaine and oxycel gauze packing. Meanwhile a cut-down was done and transfusions begun immediately. No petechiae were noted, none appeared on the arm during the time the tourniquet was in place, and no abnormal bleeding was encountered at the site of the cut-down on the right wrist.

During the following 24 hours she improved considerably. Transfusions were continued and she was given vitamin K and penicillin as a prophylactic measure against possible intercurrent infection.

On the second day B.P. was 118/76, pulse 88 and of good quality. The following day the R.B.C. was 5,650,000 and hematocrit 57 cc. packed cells. On the following day, however, bleeding recurred and the right nostril was repacked with oxycel. From then on there was constant oozing and her condition grew progressively poorer. On March 20th a postnasal packing was applied, and both nostrils tightly packed. Nevertheless, oozing continued and in fact seemed to become worse. This procedure was repeated on March 21st using a large tampon with about the same results.

In spite of the normal bleeding time, and the absence of any generalized hemor-

—Concluded on page 491

Read before the Scientific Session of the Associated Physicians of Long Island, held in the Huntington Hospital, Huntington, N. Y., on June 21st, 1949.

EDITORIALS

Children of Tomorrow

The poultry industry, at the instigation of the A. and P. Food Stores, and with the encouragement and cooperation of the United States Department of Agriculture, has greatly improved chickens grown for meat. The experience of turkey growers in developing broad-breasted varieties proved helpful. So the birds reaching the market are growing bigger and better all the time and are described as the "Chickens of Tomorrow." They weigh from four to five pounds at twelve weeks of age, as against the former average of two to three pounds at this age.

Aside from selection and cross-breeding, success has been determined by "less feed, smaller cost and better quality."

One irresistibly reflects upon what a better quality of food for our growing children would mean to the nation. Can we not do as much for the Child of Tomorrow as for the Chicken of Tomorrow?

The Inexorable Decision

Our increasingly low mortality is not the least of the factors confounding the proponents of socialized medicine. The first six months of 1949 saw an all-time low. We base this statement upon the experience of the Metropolitan Life Insurance Company with its millions of policy holders. The Company also points to the provisional data for the general population of the United States as indicating a similar experience for the country as a whole.

This lowering of mortality is in evidence at practically all age periods.

It is not hard to imagine a reversal of this trend under socialized medicine; and "regimented medicine" would be a "one-way street;" once having started down the ill-fated road the nation could not turn back.

The time for inexorable decision is now.

Austerity

Britain's labor cabinet evidently has no use for the free medical service provided by the State.

Both Sir Stafford Cripps and Mr. Ernest Bevin fly to the Continent when in need of hospitalization and medical treatment, Cripps for gastro-intestinal therapy and Bevin for cardiac check-ups.

It also transpires that exceptions are made in these instances to the rules about taking money out of England.

Austerity, including the British Medical Service, seems to be only for hoi polloi. Special privilege, in England as elsewhere, still operates.

One lives austerely, indeed, who has his medical service rationed as well as his eggs.

Per Aspirin Ad Astra

In view of the progress being made by Hench at the Mayo Clinic in the therapy of rheumatoid arthritis one may hope to see the passing from our textbooks and papers of such conventional passages as the following one:

"*Drugs.*—Relief from pain and muscle

spasm in this disease is usually afforded by the salicylates, for instance acetylsalicylic acid in doses of 0.3 to 0.6 Gm. (grains 5 to 10) four to six times daily."

When the promised conquest of arthritis comes to pass we shall probably confess the whole truth about this type of makeshift (and worse) therapy.

The late Edward E. Cornwall, of our editorial staff, used wittily to render *per aspera ad astra* as *per aspirin ad astra.*

TREATING TUBERCULOSIS ON A NATIONAL SCALE

—Concluded from page 433

problem is solved by the village settlement. But even so there are many patients left uncatered for. The inclusion of the tuberculous within the provisions of the Disabled Persons (Employment) Act enables those whose former work is unsuitable to be re-trained for other work and to be subsidised during the process. The employment of the tuberculous in special factories is under consideration.

Re-training may start in the sanatorium as the logical outcome of diversional or occupational therapy; if not, it is arranged at the tuberculosis dispensary. There still remain those patients physically able to do some form of work but who are confined to their homes, and every effort is being made to find "home work" for these patients.

After-care and Social Welfare

The recovery of the tuberculous patient is retarded if the mind is ill at ease, and of the many anxieties which beset a patient that occasioned by his financial commitments is probably the greatest. The old method of granting family allowances has now been replaced by the National Assistance Board which can give money over and above the ordinary sickness benefit for tuberculous patients in case of need. The scale corresponds closely to that of the family allowances and in the case of the tuberculous is more, sometimes 50 per cent more, than for other disabilities, this extra being intended to pay for additional milk, eggs, bacon and fats allowed above the standard ration.

The Assistance Board also takes account of such special obligations as life assurance premiums, installment purchases, rent of the home, and possibly school fees. Grants are also made towards the cost of domestic help and traveling expenses of the patient and of the relatives who visit him. There is still considerable scope, however, for voluntary effort. Voluntary organizations can contribute greatly to the welfare and happiness of the patients by providing clothing, bedding, library books and magazines, by organizing correspondence courses, and by arranging household help and family holidays.

There is a noticeable increase in the number and activities of tuberculosis almoners and medico-social workers whose help is appreciated and sought, and who are now officially encouraged to supply that extra personal touch which often means so much to the patient. It is right that this should be so, for tuberculosis is a personal disease, and it is getting into the home and studying the intimate environment of the family as a unit that progress in its eradication will be made. This tradition of social service has been well founded and was nicely expressed by Florence Nightingale, founder of Britain's nursing service, who many years ago said, "the secrets of national health lie in the homes of the people."

CONTEMPORARY PROGRESS

MEDICINE

DDT Poisoning and the Elusive "Virus X". A New Cause for Gastro-Enteritis

M. S. Biskind (*American Journal of Digestive Diseases,* 16:79, March 1949) notes that for a period of more than two years, cases of a curious symptom complex have been reported throughout the United States. This symptom complex includes acute gastro-enteritis, with nausea, vomiting, abdominal pain and diarrhea, often with extreme tenesmus. Coryza, cough and persistent sore throat are common; pain in the joints, generalized muscle weakness and "exhausting fatigue" are typical. A febrile reaction is usually absent. Some of the symptoms tend to persist or to recur repeatedly over a period of months. This syndrome has been attributed to infection with "a thus far illusory virus X". In this syndrome, the usual absence of fever, the erratic recurrence of symptoms, the lack of observable inflammatory reactions, and the resistance to all types of therapy suggest an intoxication rather than an infection. In searching for a possible toxic agent, the author found that the "epidemic" appeared first at about the time DDT came into general use by the civilian population, and according to the literature on DDT poisoning, the signs and symptoms are identical with those of this syndrome. By reviewing the history of patients showing the "virus X" syndrome, data have been accumulated on over 200 cases showing that the symptoms developed immediately after known exposure to DDT. Some of these patients had noted that exposure to DDT spray or aerosol caused lachrymation, coryza, cough, "wheezing" and nausea. But all of them had been "completely convinced of the utter safety of DDT," and regarded these symptoms as unimportant. The DDT problem requires further intensive investigation, and in the meantime DDT should not be used indiscriminately for insect control by the general public.

COMMENT

Apparently this type of reaction may follow drinking milk or eating meat from animals which have been exposed to DDT spray. Strict government regulation of the use of DDT should be instituted. ***M.W.T.***

Principles of Nutrition Therapy

R. S. Goodhart (*Bulletin of The New York Academy of Medicine,* 25:185, March 1949) states that "the four cardinal principles" of nutrition therapy are: Early treatment; the use of therapeutic amounts of the nutrients prescribed; the provision of all the nutrients necessary for life and health in adequate amounts and in forms that the patient can utilize; and continuous and prolonged treatment. Early treatment depends upon early diagnosis of nutritional deficiency states, and this is often difficult, requiring the careful appraisal of the patient's dietary and medical history as well as his symptoms and signs. The Recommended Dietary Allowances of the Food and Nutrition Board are intended to indicate the requirements of healthy persons for the prevention of nutritional deficiencies. In the treatment of nutritional deficiencies much larger amounts of the nutrient required must be employed. The author is of the opinion that if vitamin therapy is indicated, the daily dosage of

the vitamin or vitamins indicated should be five times the Recommended Dietary Allowances; the water soluble vitamins should be given in divided doses throughout the day to avoid excessive waste by "spill over into the urine." When there is deficiency of one nutrient, there is an associated deficiency of others, and the diet should be so planned as to contain "enough of each and everyone of the necessary nutrients" and definitely therapeutic amounts of the nutrients deficiency of which is considered to be the cause of the patient's presentings signs and symptoms. If the patient cannot ingest and utilize sufficient amounts of high quality proteins, protein concentrates can be utilized to supply the essential amino acids in adequate amounts. In the treatment of obesity, the diet should be deficient only in calories, not in protein and the vitamins. Treatment for nutritional states must be continuous and prolonged, although the symptoms of some specific nutritional deficiency may respond rapidly to therapy; intensive therapy may be followed by a longer period of less intensive therapy; and the patient should be continued on protective amounts of essential nutrients for at least a year after apparently complete recovery.

COMMENT

It is a good idea, as the author states, to divide the doses of water soluble vitamins over a period of four or five times a day. This avoids excessive waste by rapid elimination through the kidneys. *M.W.T.*

The Use of Cevitamic Acid in the Symptomatic and Coseasonal Treatment of Pollinosis

E. A. Brown and S. L. Ruskin (*Journal of Allergy*, 7:65, Jan.-Feb. 1949) report a survey of 60 patients with hay fever, who were given vitamin C during the ragweed hay fever season; about half of these patients, who took 250 mg. three or four times daily, showed an improvement of 50 per cent or more. While the analysis of the patients studied by one of the authors (E.A.B.) showed marked improvement in about half of these patients, the group of patients studied by the other author (S. L.R.) showed improvement in about three-quarters of the patients. The patients in the first group were given three to four tablets of cevitamic acid daily, while those in the second group were given six to nine tablets daily. This larger dose may explain the greater degree of improvement in a larger percentage of the patients. There were no untoward reactions observed, except one case of hives, and one case of gastric irritation; in the latter case the patient continued to take the tablets. It is concluded that the administration of cevitamic acid may be "a suitable type of symptomatic adjuvant treatment" for seasonal hay fever. It can be given safely in doses as high as 2,250 mg. daily.

COMMENT

The authors have consistently advised this therapy over a period of time. It might be

well to try it more extensively in the symptomatic adjuvant treatment for hay fever.

M.W.T.

The Effect of a Hormone of the Adrenal Cortex and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report

P. S. Hench and associates (*Proceedings of the Staff Meetings of the Mayo Clinic,* 24:181, April 13, 1949) report the treatment of rheumatoid arthritis with a hormone of the adrenal cortex known as Compound E (17-hydroxy-11-dehydrocorticosterone) or pituitary adrenocorticotropic hormone. Compound E was employed in the treatment of 14 cases, all with moderately severe to severe chronic polyarticular rheumatoid arthritis, of four and a half months' to five years' duration; the 3 patients with disease of relatively short duration (four and a half to five months) were considerably disabled by rapidly progressive arthritis. In the last few months E acetate has been used. In the earlier cases, 100 mg. of compound E was given daily; with E acetate, which is absorbed somewhat more slowly, a dose of 300 mg. has been used on the first day, and usually 100 mg. daily thereafter. All other methods of therapy were discontinued; the patients were not kept at rest in bed, but were ambulatory, as far as their condition permitted, and as they improved under treatment. In all cases there was marked reduction of stiffness in the muscles and joints, lessening of articular aching or pain on motion, and definite improvement in articular and muscular function. There was also improvement in the general condition of the patients. In most cases, improvement was not maintained for any length of time after injections were discontinued. An adequate maintenance dose was not determined in these studies. Two patients with rheumatoid arthritis have been treated with pituitary adrenocorticotropic hormone; the degree of improvement was much the same as with Compound E or E acetate; as with E, the improvement was not maintained after treatment was discontinued. Much further study of the effect of Compound E, or E acetate, and related hormones in the treatment of rheumatoid arthritis and other rheumatic diseases is indicated. Such investigations and the possibility of widening their scope are unfortunately hindered by the fact that only small amounts of Compound E are now available.

COMMENT

Apparently Cortisone is one of the outstanding discoveries of the year. Perhaps it is fortunate that it cannot be obtained in quantity. Otherwise it would be tried for every disease which has no specific therapy.

M.W.T.

Aureomycin in the Treatment of Primary Atypical Pneumonia

Maxwell Finland and associates (*New England Journal of Medicine,* 240:241, Feb. 17, 1949) report the use of aureomycin in the treatment of a small group of cases of primary atypical pneumonia. In all these cases the symptoms and x-ray findings were typical of the disease and the patients were moderately or severely ill before treatment was begun. Aureomycin was given by mouth in a dosage of 1 Gm. every four to six hours until the temperature was "essentially normal" for a few hours, then 1 Gm. was given every six to eight hours for another two or three days. In every case, the temperature fell to normal levels and remained normal within twelve to thirty-six hours after the first dose of aureomycin. This fall in temperature was accompanied by a diminution in "toxicity" and improvement in the systemic and respiratory symptoms. There was no further demonstrable extension of the pulmonary lesions, but progressive clearing of the lungs. With some lots of aureomycin used, nausea with or without vomiting frequently occurred when large doses were given; in some patients this seemed to obscure the early symptomatic improvement, but this usually subsided "as recovery set in," although the administration of aureomycin was continued. Cold agglutinins were demonstrated in high titer in the serum of all these patients either late in the acute illness or during

convalescence. The course of the disease in these cases suggests that aureomycin had a definitely favorable effect. In 2 other cases "a somewhat similar course of events" followed the administration of streptomycin. If treatment is withheld, as in these cases, until they show progressively increasing severity of symptoms or extension of pulmonary lesions, it is difficult to determine the true therapeutic value of any drug or antibiotic employed, because of variations in the natural course of the disease.

COMMENT

Aureomycin has worked well in this type of pneumonia. ***M.W.T.***

PUBLIC HEALTH, INDUSTRIAL MEDICINE AND SOCIAL HYGIENE

Is Gonorrhea Control a Public Health Problem

M. R. Kiesselbach (*American Journal of Syphilis, Gonorrhea and Venereal Diseases,* 33:80, Jan. 1949), states that since it has been found that penicillin is effective in the treatment of gonorrhea, there has been a tendency, even among some public health officers, to regard the diagnosis and treatment of the disease as in the province of the private physician rather than as a matter of public control. Statistics show, however, that the incidence of gonorrhea has not been reduced by the use of penicillin in treatment. Special studies have also shown that the diagnosis of gonorrhea cannot be made accurately by clinical findings and slides, especially in the female. On the basis of these studies it may be concluded that of the approximately 400,000 cases reported as gonorrhea in the civilian population of the United States annually, it may be that not more than 250,00 cases are actually gonorrhea and the other 150,000 "something else" that cannot be distinguished from gonorrhea except by special methods of diagnosis, including cultures. It is evident that the prevention, diagnosis and treatment of such infections remains a public health matter. The public health control of gonorrhea should include provision for adequate gonococcus culture facilities for public clinic patients, and for gonorrhea case-finding projects in certain areas conducted by the Venereal Disease Division of the U. S. Public Health Service or by other agencies in cooperation with this Division; such diagnostic facilities should also be available to private physicians. Tracing of female contacts of males with acute gonorrhea is also a public health measure that is of value; but tracing of male contacts of female patients with gonorrhea has not been found of sufficient value to be encouraged, according to the experience of the Venereal Disease Division. Also according to the experience of this Division of the Public Health Service, public health personnel should not be employed to follow up patients treated for gonorrhea for tests of cure; but such tests should be made available to patients in the public clinics.

COMMENT

With public health laboratory services easily available plus the proven effectiveness of penicillin, the diagnosis and treatment of gonorrhea, with the exception of the indigent, can be handled with few exceptions successfully by the private physician. Contact tracing, however, will continue to remain a function of the health officer. It falls within his province to supervise the examination, either by the private or clinic physician, of contacts, to ascertain that infected contacts are treated, and to see that prophylactic treatment be given to symptomless contacts of proven cases of gonorrhea.

Not infrequently a certain amount of stimulation is required to induce penicillin-treated patients to return to their private physicians or to the clinic for examination in order to determine whether they are cured. Here again the intervention of the health officer is necessary. ***E.G.B.***

A Community Program for the Control of Rheumatic Fever

G. C. Griffith (*American Journal of Public Health,* 39:61, Jan. 1949) presents

statistics showing the importance of rheumatic fever as a public health problem, and describes a community program for the control of rheumatic fever adopted by the Ontario and Upland municipalities in San Bernardino County, California. Rheumatic fever is important as a public health problem, not only because of the morbidity and mortality of the acute disease, but also because of cardiac disease resulting from it. Any public health program for the control of rheumatic fever must include case finding, provision for accurate diagnosis and for adequate long-time care. In carrying out the rheumatic fever control program in the Ontario and Upland district, every child in the schools from six to twelve years of age is examined, public health officials and nurses cooperating with the school physicians and nurses in this program. The local Community Hospital provides space and personnel for a clinic to which children showing evidence of "the rheumatic state" are sent for further diagnostic study, including electrocardiograms and fluoroscopic study. The full record of each child found to be rheumatic is sent to the family physician, the public health physician or the school physician. If the child is under the care of a family physician an appointment is made for a follow-up examination at the clinic in three to six months; for those not under the care of a private physician, clinic appointments are made for two to four weeks. Parents are interviewed by physicians at the clinic and given instruction. Public health nurses visit both private patients and those not under the care of a private physician. In the latter group they help the parents in carrying out instructions given at the clinic. Special attention is given to the early detection of upper respiratory tract infection and possible recrudescence of rheumatic activity associated with such infections. A survey for possible streptococcus carriers in the patients' homes is now being carried out. Convalescent care in a rheumatic fever hospital has been possible so far in only one case. It is believed that many patients, even from the better homes, would do better in a convalescent heart hospital, where they are protected to a great extent from epidemic streptococcal throat infections; have a routine of rest and adequate food; and are provided with education facilities, organized play and occupational guidance.

COMMENT

A rheumatic fever program has been conducted in a number of schools in Nassau County, New York, for the past two years. Children known or suspected of having rheumatic fever or rheumatic heart disease are referred by physicians to the Cardiac Consultation Service at the county hospital. The diagnosis and recommendations are sent to the referring physician. Cases are kept under supervision and a register of cases is maintained. Up to June 15, 1948, a total of 270 children was referred for examination; 71 were found to have organic heart disease; 104 had possible or potential cardiac involvement; 5 patients had been hospitalized; 86 did not have heart disease and 4 failed to return for reexamination.

A program similar to the one described by the author was carried out in Dublin, Georgia; it is described by Robert W. Quinn in* American Heart Journal, *32:234-42 (No. 2), August 1946. A study of 401 school children, in grades 5 to 8 inclusive, revealed that two per cent had rheumatic fever. Rheumatic heart disease was found in 1 per cent of all children examined. The incidence of both rheumatic fever and rheumatic heart disease was lower in colored than in white children. Of the children examined, about 60 per cent were white and 40 per cent were colored. E.G.B.

Tetanus Immunization in Industry

J. K. Martins (*Industrial Medicine*, 17:473, Dec. 1948) reports the immunization of workers in a pharmaceutical manufacturing plant against tetanus, using tetanus toxoid. While such a plant is not a heavy industry where the danger of tetanus is greatest, owing to the frequent occurrence of minor wounds, sources of tetanus infection are numerous. For immunization two ½ cc. doses were given two months apart; a total of 639 injections were given. Any subsequent injury to immunized persons will be treated by a "booster" dose of tetanus toxoid. All unimmunized persons who are injured are treated with tetanus antitoxin, and with each dose of 3000 units a routine toxoid

immunization is given. There was no anaphylactic reaction to the toxoid injections in any case; reactions severe enough to cause complaint occurred in only 1.2 per cent of cases. Six days time was lost from work by 3 men. In view of the few and slight reactions to toxoid immunization against tetanus in contrast to the more severe reactions and definite hazards of antitoxin treatment, the author advocates the widespread use of tetanus immunization in industry, especially in those plants where there is special danger of tetanus infection.

COMMENT

The number of deaths reported from tetanus in the United States Registration Area in 1947 was only 511. The vast amount of tetanus antitoxin used yearly indicates that there are many thousands of wounds where the possibility of tetanus must be considered.

In an editorial in the July 1941 **American Journal of Public Health,** ***in which the use of tetanus toxoid in the army is considered a valuable procedure, its use in civil life is also advocated, especially among certain groups: "farmers and their families, industrial workers, children in general who have a proclivity for sticking nails into their feet, and others who for one reason or another may run a chance of infection with*** **Clostridium tetani."**

The advantages of active immunization with toxoid, with the rather prompt boost in immunity to an effective level by a single dose in previously immunized individuals at the time of injury, is pointed out in this paper, and appears to have many advantages over passive immunization with the antitoxin. E.G.B.

Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics

Alfred Yankauer, Jr. and H. P. Goldberg (*American Journal of Public Health*, 38:1683, Dec. 1948) report a study of the cases of poliomyelitis reported to the New York City Health Department in 1944 when the disease was epidemic and in 1940 through 1943, non-epidemic years, with special reference to the age distribution of the cases. It was found that in 1940 through 1944, the number of poliomyelitis cases in children who were under one year of age at the time of the 1931 and 1935 epidemics is not less than would have been expected. All children who were nine and thirteen years of age at the time of contracting poliomyelitis in 1944 were considered to have been under one year of age at the time of the 1935 and the 1931 epidemics respectively. This assumption was based on the fact that the disease occurs "in the main" at the same time of year in epidemic as well as in non-epidemic years. The exact birth date was ascertained in 112 cases of the nine and thirteen year age groups of the 1944 epidemic; there was no preponderance of those who were six to eleven months of age at the time of the previous epidemic—an age when passive immunity would be less than in younger infants. The exact birth place of 97 children in the nine and thirteen years old groups was investigated; of these 4 could not be traced, 2 were born outside New York City. The results in this study do not support the hypothesis that contact with the poliomyelitis virus in the first year of life may produce a long-lasting immunity although clinical disease does not develop. The virus of poliomyelitis has been found to be widely distributed during an epidemic, and although the exact extent of exposure is not known, it is probable that a considerable percentage of infants are likely to be exposed.

COMMENT

The authors have produced evidence from the 1944 poliomyelitis epidemic in New York City that suggests that no immunity in excess of that in others was afforded to individuals who were under one year of age at the time of two previous epidemics.

It is probable that the 1931 and 1935 epidemics, to which the 9 year and 13 year old patients in the 1944 outbreak had been exposed during infancy, might have been caused by different strains of the virus which did not produce cross immunity. Thus, a sub-clinical attack during infancy in 1931 and 1935 would give little or no protection to the virus causing the disease in 1944. E.G.B.

Q Fever in Laundry Workers, Presumably Transmitted from Contaminated Clothing

J. W. Oliphant and associates (*American Journal of Hygiene*, 49:76, Jan. 1949) report the occurrence of 3 cases of Q fever

and 3 cases of apparently subclinical infection as indicated by the complement-fixing antibody titer of the serum, occurring in laundry workers who handled material from the Rocky Mountain Laboratory. None of these workers had a history of recent tick bite, exposure to contaminated air in experimental laboratories, or contact with slaughterhouses or cattle pens or any other source of infection outside their employment. All of these workers had handled soiled laundry from the Laboratory. Other workers in the laundry who did not handle soiled laundry showed no signs of Q fever infection either clinically or serologically. The onset of the disease in the 3 clinical cases of Q fever occurred on February 13, 21, and 27 (1948); the interval is within the limits of variation of the incubation period of Q fever, so that it seems unlikely that the second and third cases were due to contact with the first case. It is of public health interest that Q fever can apparently be transmitted indirectly by contact with contaminated materials such as clothing and linen, as no other source of infection could be established in these cases. Since these cases occurred, all soiled laundry is sterilized with steam under pressure at the Laboratory before being sent to the laundry.

COMMENT

An investigator from Australia (D. J. W. Smith, Aus. J. Exp. Bio. & Med. Sc. 19:133-136; 1941), where Q Fever was discovered, reported that "feces from infected ticks were found highly infectious, and it was postulated that cases of Q fever in slaughterhouse employees resulted from inhalation of tick feces from the hides of tick-infested cattle." Most probably a parallel can be drawn between infection of these workers and the laundry employees who handled soiled linens from the Rocky Mountain Laboratory. ***E.G.B.***

A CASE OF IDIOPATHIC THROMBOCYTOPENIC PURPURA

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rhagic phenomena, it was felt that a blood dyscrasia had to be considered. A platelet count done on March 22 was reported as 60,000. A repeat count showed 92,000 platelets. Coagulation time by the Lee White method was 10 minutes, 30 seconds. The possibility of a neoplasm was considered, but her condition was too poor to permit transportation and manipulation for x-rays. Transfusions were continued and she received massive doses (72mgm.) of vitamin K intravenously, plus thromboplastin, vitamin C and calcium. She continued oozing through the packing, but seemed fairly alert so that no immediate exodus was anticipated. However, quite suddenly on the morning of March 24th she expired.

Post-mortem examination revealed multiple ecchymoses involving the peritoneum, heart, lungs and kidneys. The immediate cause of death, however, was not found until the skull was opened, revealing massive bilateral subdural hemorrhages. Multiple sections through the brain showed no evidence of other hemorrhage.

COMMENT: Although thrombocytopenic purpura was considered in this case, the findings were never sufficiently conclusive to make a definite diagnosis, and certainly not sufficiently well defined to warrant a splenectomy. The one laboratory finding in keeping with the diagnosis was the lowered platelet count, and this particular test is generally recognized as being notoriously subject to error.

Dameshek recently reviewed a number of cases of idiopathic thrombocytopenic purpura manifested by menorrhagia, emphasizing the salient points in differential diagnosis, and the therapeutic value of a splenectomy. It is well to remember this disease entity in dealing with the unexplained hemorrhages so that we not waste valuable time and effort on futile local treatment.

1. Dameshek, W., and Rheingold, J.: Idiopathic Thrombocytopenic Purpura and Menorrhagia Mistakenly Treated for Local Disease, *J.A.M.A. 139*: 993-996 (April 9) 1949.

Medical BOOK NEWS

Edited by
ANDREW M. BABEY, M.D.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn 16, N. Y. When books are sent to us with requests for review, selections for that purpose are promptly made.

Jean Nicholas Corvisart
1755 ~ 1821

Classical Quotations

● The cartilaginous, or bony hardening of the auriculo-ventricular orifices, of the mitral and tricuspid valves, of the semilunar pulmonary valves, the vegetations which grow on the valves, either ventricular or arterial, all have as a principal effect, the production of a more or less complete narrowing of the affected orifices.

JEAN NICHOLAS CORVISART

Essai sur les maladies et les lesions organiques du coeur, Paris, Migneret, 1806, p. 231.

Endocrinology

General Endocrinology. By C. Donnell Turner, Ph.D. Philadelphia, W. B. Saunders Co., [c. 1948]. 8vo. 604 pages, illustrated. Cloth, $6.75.

This is an excellent introduction to the fundamental principles of endocrinology as a biological science. The author also shows how these principles have been and are being applied in the modern study of endocrine disease. It is this correlation of basic research and practical medicine that makes the volume useful to the physician who is interested in problems of growth and development, in metabolic diseases, and in endocrine dysfunctions.

A very useful and up-to-date bibliography appended to each chapter makes the work invaluable for further reading of such articles as are fundamental in this field and of those that show the latest advances.

ALFRED GOERNER

Psychiatry

You and Your Fears. By Peter J. Steincrohn, M.D. Garden City, N. Y., Doubleday & Co., [c. 1948, 1949]. 12mo. 224 pages. Cloth, $2.50.

This is a short summary of man and his emotional problems. It is designed for the layman but should prove interesting for the general practitioner as well. The book seems sound and conservative and should be helpful for the more intelligent nervous patient as a reference book.

ANDREW BABEY

Chemotherapy

Evaluation of Chemotherapeutic Agents. Edited by Colin M. MacLeod, M.D. Symposium held at the New York Academy of Medicine, March 25 and 26, 1948. New York, Columbia University Press, [c. 1949]. 8vo. 205 pages, illustrated. Cloth, $4.00. (Symposia No. 2 of the Section on Microbiology, The New York Academy of Medicine.)

For a comprehensive view of the whole field of chemotherapy, particularly in its theoretical aspects, this book is heartily recommended.

ANDREW M. BABEY

Etymology

Medical Etymology. The History and Derivation of Medical Terms for Students of Medicine, Dentistry, and Nursing. By O. H. Perry Pepper, M.D. Philadelphia, W. B. Saunders Co., [c. 1949]. 8vo. 263 pages. Cloth, $5.50.

This brief volume is a most interesting and helpful "dictionary" of the derivation of medical terms. There are four sections, including dental, clinical and preclinical. A brief introduction is most enlightening and reveals Pepper as a true student of our language.

ANDREW BABEY

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MEDICAL BOOK NEWS

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Drugs

Development Schedule of New Drug Products. By Paul de Haen. New York, Romaine Pierson Publishers, [c. 1949]. 4to. 121 pages and 6 flow charts. Cloth, $7.50 (book alone). $15.00 for book and 5 extra sets of work sheets and flow charts.

In this work the author covers concisely and fully the step by step development of a new drug, from the time the idea is conceived until the finished product is finally placed on the market. He discusses clearly though briefly the various steps in research and marketing and includes work sheets for the use of each department of the company. The book also has flow charts for use of the agency coordinating the entire development program. It should be useful to any company concerned with the development of new pharmaceutical products.

WESLEY DRAPER

Career

How to Become a Doctor. A Complete Guide to the Study of Medicine, Dentistry, Pharmacy, Veterinarian Medicine, Occupational Therapy, Chiropody and Foot Surgery, Optometry, Hospital Administration, Medical Illustration, and the Sciences. By George P. Moon, M.A. Philadelphia, Blakiston Co., [c. 1949]. 8vo. 131 pages, illustrated. Cloth, $2.00.

This little book seems to serve its purpose very well; the reviewer finds the advice and information correct and adequate. It is hardly worth while to comment on the few errors, which are unimportant; however this reviewer rather resents the statement that "hospitals have *increased* the internship to more than 12 months," in this family 3 generations have had internships of 24 months each.

There is not and never has been "allopathic" medicine; the word was invented in jealousy and it is surprising to find it used in this day and generation.

The blurb, which of course is not part of the book, is rather objectionable, intimating more completeness in presenting, how to become a chiropodist, etc., than is given.

For the young man wanting to become a medical student and so a doctor, this book will be useful.

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Treatment For Ammonia Dermatitis

Ammonia dermatitis is caused by the formation of ammonia as a result of the action of *B.* ammoniagenes on urinary urea. The organism originates in the faces and infests the skin in the diaper region of infants. Benson, Slobody, Lillick, Maffia, and Sullivan reviewed 500 cases of diagnosed ammonia dermatitis which were treated with *p*-di-isobutyl-cresoxy-ethoxy-ethyl di-methyl benzy ammonium chloride monohydrate (Diaparene), in *J. Pediat.* (*34* (Jan. 1949)). The diapers were impregnated with a 1:25,000 solution of the drug and then dried. Of the 500 cases treated 436 cleared within one week. Of the 64 fail-

—Continued on page 54a

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1. Horton, B.T., Ryan, R. E. & Reynolds, J. L., Proc. Staff Meet. Mayo Clinic, 23:105, Mar. 3, 1948.
2. Friedman, A. P., N. Y. State Jl. of Med. (in press).
3. Ryan, R. E., Postgraduate Medicine (in press).
4. Hansel, F. K., Annals of Allergy (in press).

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—Continued from page 52a

ures 9 refused further treatment and 23 were thought not to have been ammonia dermatitis but an irritative or allergic dermatitis. No irritant or allergenic reactions traceable to the Diaparene have been noted. The compound has been shown to have a marked bactericidal action against *B. ammoniagenes*. No other treatment was used except the impregnation of the diapers with the non-volatile antiseptic.

Testosterone In the Treatment of Depression

Testosterone in doses of 25 mg. twice a day was given to 28 men and 3 women, 31 to 74 years of age, with manic-depressive psychoses, schizophrenia, or other forms of severe depression. Psychotherapy was employed in all cases and in 7 cases electroshock therapy was given simultaneously. All of these 7 and 11 of 17 not receiving electroshock therapy showed improvement. Edema, tachycardia, or dyspnea made withdrawal of the hormone necessary in 4 patients. Altschule and Tillotson, writing in the *New England J. Med.* (*239*:1036 (Dec. 30, 1948)) suggested that the beneficial effects of shock therapy may result from an increased production of some steroid hormones since they found an interchangeability of the effects of electroshock and testosterone in some patients.

Recent Developments in Hyaluronidase

A number of papers were presented at the conference on the "Ground Substance of the Mesenchyme and Hyaluronidase" sponsored by the Sect. of Biology of the

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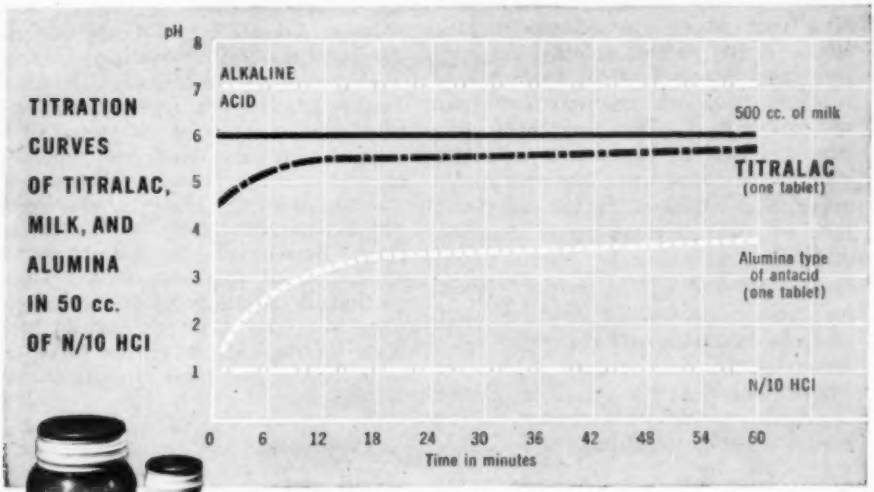
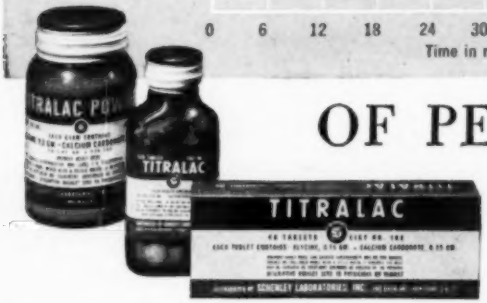
NON-SURGICAL TREATMENT





OF PEPTIC ULCER

Gastroenterologists have long endorsed the use of milk, when practicable, for its ideal acid-converting power and buffering capacity.[1, 2] In a recent comprehensive paper, Aaron[3] and others[4, 5, 6] express a preference for calcium carbonate as the antacid to be employed.

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1. Rossett, N. E., and Flexner, J.: Ann. Int. Med. 18: 193 (1944). 2. Freezer, C. R. E.; Gibson, C. S., and Matthews, E.: Guy's Hosp. Reports 78: 191 (1928). 3. Aaron, A. H.; Lipp, W. F., and Milch, E.: J. A. M. A. 139: 514 (Feb. 19) 1949. 4. Kirsner, J. B., and Palmer, W. L.: Illinois M. J. 94: 357 (Dec.) 1948. 5. Kimball, S.: in Practice of Medicine (Tice). Hagerstown, Md., W. F. Prior Company, Inc., 1948; p. 210. 6. Special Article: M. Times 76: 10 (Jan.) 1948.

*The formula of TITRALAC is one whose composition and mode of action are recognized by U.S. Patent No. 2,429,596.

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MODERN THERAPEUTICS

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New York Academy of Sciences in Dec. 1948. Seifter pointed out that the purified depolymerase form of hyaluronidase is nonirritating and relatively free from antigenic action. This has been substantiated both by experiments with animals and by clinical trial. The wide margin of safety is evidenced by the fact that a dose of 200,000 times larger than the therapeutic dose must be injected before there is the first sign of toxicity. It also has been demonstrated that, although hyaluronidase accelerates absorption of solutions administered by clysis, it does not enhance nor cause the spread of existing infections. Sprunt discussed the latter fact further when he stated that hyaluronidase inhibited the spread of the infection. The theory which he advanced is that the enzyme spreads the bacteria over a larger area and thus makes them more susceptible to the body's defense mechanism.

Kirby, Eckenhoff, and Looby discussed the use of the enzyme with local anesthetic agents and also published a report in *Surgery* (*25*:101 (Jan. 1949)). Although hyaluronidase increased the spread of the anesthetic in nerve block and infiltration anesthesia there was also a decrease in the duration of effect. However, when epinephrine was added there was no decrease in the duration of effect but the increase in the spread was unimpaired. This is particularly advantageous in nerve block anesthesia since it is very difficult to always hit the location of the nerve each time, due to anatomical variation between individuals.

The clinical use of hyaluronidase in hypodermoclysis and urography was reported by Burket and Gyorgy and later

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published in the Jan. 1949 *Pediatrics*. The authors stated that the addition of the enzyme to clysis solutions accelerated absorption by about 40 per cent and it was not necessary to interrupt administration because of induration or pain. Adequate visualization in urography was obtained from a reduced amount of the dye when administered subcutaneously in conjunction with hyaluronidase. There was no evidence of renal pathology and no thermal reaction attributable to the enzyme. This study was conducted with 116 infants and children.

Hearing Aided By Vitamin A

After treatment for five weeks with injections of vitamin A only 17 per cent of 300 hard-of-hearing patients failed to respond. Improvement in hearing up to 46 per cent was accomplished in some patients. Lobel reported on 50 of the patients in the series in *Eye, Ear, Nose and Throat Month.* (*28*:213 (1949)). The average improvement in 26 patients treated less than 5 months was 10 per cent while the average improvement in 24 patients treated more than 5 months was about 18 per cent. The vitamin A was injected in a preparation of olive oil and terpins twice a week in a dose of 50,000 units.

Phosphorus In Vitamin B^{12} Molecule

Phosphorus has been found to be present in the molecule of vitamin B^{12} to the extent of 2.1 per cent as compared with 4.0 per cent of cobalt. This gives an atomic ratio of 1:1 for phosphorus and cobalt in the vitamin molecule. A quantitative method for evaluating the phosphorus content in the deeply colored hydrochloric acid hydrolysate of the vitamin was described by Ellis, Petrow, and Snook

—Continued on page 60a

PSORIASIS

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Many dermatologists agree in recommending local treatment with RIASOL to eradicate the scaly patches of psoriasis. Their experience has proved its value.

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RIASOL for PSORIASIS

—Continued from page 58a

in *J. Pharm. Pharmacol.* (*1*:287 (May 1949)). The method involved a new application of the unidimensional paper-strip partition chromatogram technique.

Procaine Improves Arthritis Cases

The intravenous injection of procaine can relieve the pain and restore mobility and thus aid in restoring the arthritis patient to a healthy, normal life, according to Graubard and Peterson in *Conn. St. Med. J.* (*13*:33 (1949)). The authors had given over 3,000 infusions of procaine to 165 patients suffering from traumatic arthritis, osteoarthritis, and rheumatoid arthritis. Results were favorable in 153 patients. The procaine was administered in a 0.1 per cent isotonic saline solution of the hydrochloride by infusion into the veins for 20 minutes. The dosage roughly gave 4 mg. of procaine per Kg. of body weight. The pain-relieving effects are accumulative, apparently, giving greater relief for longer periods following subsequent infusions. The results in the patients with traumatic arthritis were best. In all of the patients treated vitamin C was given along with the procaine. The vitamin C acts to correct the capillary porosity and to increase the resistance to toxic effects from the procaine. No side effects, morbidity or sensitivity were observed in any of the 3,000 infusions. The authors suggested that the procaine probably had an anesthetizing action on the irritated nerve endings surrounding the capillaries in the affected joints and it also may have had an influence in averting deterioration of the sympathetic nervous system.

Brucellosis Is Halted By Aureomycin

Aureomycin was effective in controlling the symptoms of brucellosis in 5 cases reported by Bryer, Schoenbach, Wood, and

Long in *Bull. Johns Hopkins Hosp.* (84: 444 (1949)). The duration of the disease varied from 18 days to 6 years. All of the 5 patients showed the typical symptoms of the disease and the brucella organisms were isolated from the blood before treatment was begun. The dosage regimen consisted of the oral administration of 200 to 250 mg. every hour for 3 hours, then the same dose every 2 hours for 1 to 8 days, and a like dose every 3 or 4 hours for a total of 14 days. The patients responded quickly with abolition of fever within 72 hours and a disappearance of the symptoms of the disease in one week. The size of the liver and spleen decreased almost immediately. The reactions to the drug consisted of nausea in two cases and vomiting in one. This was eased by the administration of aluminum hydroxide.

Pyridoxine Effect On Blood Urea During Pregnancy

A determination of the blood urea level of fasting normal nonpregnant women was found to be 21.3 mg. per cent on the average. The level in normal pregnant women was 12.4 mg. per cent but in patients with hyperemesis gravidarum the level was 10.3 mg. per cent. However, after the administration of 40 mg. of pyridoxine hydrochloride orally on each of 3 successive days the average blood urea level of the first two groups remained the same but the level of the hyperemesis patients increased to 15.5 mg. per cent. McGanity, McHenery, Van Wyck, and Watt also stated in *J. Biol. Chem.* (178:511 (Mar. 1949)) that the abnormal response of the blood urea levels in the hyperemesis patients following the administration orally of 30 Gm. of dl-alanine was corrected after the administration of 120 mg. of pyridoxine-HCl.

Modified Vitamin E May Be Effective Against Dystrophy

In a report before the recent International Conference on Vitamin E in New York, Dr. A. T. Milhorat pointed out

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MODERN THERAPEUTICS

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that muscular dystrophy can be produced in experimental animals by the withdrawal of vitamin E. The condition can be subsequently cured by the administration of alpha-tocopherol, administered either orally or parenterally. However, this form of vitamin E is not effective in the treatment of the disease in human beings even though there is evidence that the vitamin is definitely absorbed. Experiments with derivatives of vitamin E have revealed that a hydroquinone redivative, d-para-alpha-tocohydroquinone, will bring about a remission of the disease and a marked reduction in creating output in rabbits with muscular dystrophy. This compound is effective orally but is more effective intravenously.

The investigator and his associates believe that the reason alpha-tocopherol itself is not effective in the treatment of human dystrophy is due to the absence of a gastric factor which converts the tocopherol to a more biologically active form. Therefore, it is suggested that the biochemical defect bringing about the disease is inability to effect the change from a percursor to an active form, a situation analagous to that which exists in pernicious anemia.

NEWS AND NOTES

Drug Makers Propose New Self-Regulation

A new move toward what he described as "a constructive, higher order of self-regulation" was proposed for the entire pharmaceutical manufacturing industry by Dr. Theodore G. Klumpp, president, in his opening address at the 42nd annual meeting of the American Pharmaceutical Manufacturers' Association at Hot Springs, Va.

Dr. Klumpp strongly urged reorganization of the Combined Contact Committee of the APMA and the American Drug Manufacturers' Association, which should be "strengthened and streamlined."

"The Combined Contact Committee of the two associations has proved to be a valuable instrumentality for the exchange of technical information between the Committee of Revision of the United States Pharmacopoeia, the National Formulary Committee and the Food and Drug Administration," Dr. Klumpp said. "I recommend that this group, representing the industry as a whole, undertake a more extensive program of studies in the future and extend the scope of its activities."

Students To Study In Mental Hospitals

University of Wisconsin fourth-year medical students will study in state mental hospitals as part of their preceptorship training, Dr. H. M. Coon, superintendent of Wisconsin General hospital, has announced.

The program, which began June 27, will give students an opportunity to view firsthand the treatment of mental illness and will augment their academic training with practical application.

Under Wisconsin's preceptorship system, which has been carried on for years by the

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NEWS AND NOTES

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Medical school, senior medical students spend half their time at the University working in Wisconsin General hospital and the other half at medical centers in the state. About half of the latter time is spent in small communities working under an established doctor.

Postgraduate Courses, Faculty Announced By New York University-Bellevue Medical Center

The first catalogue descriptive of the courses and teaching staff of the Post-Graduate Medical School, New York University-Bellevue Medical Center, has been issued by New York University. The catalogue is the first published by the new consolidated school, established while the last academic year was in progress through the union of the former New York Post-Graduate Medical School and the Post-graduate Division of New York University College of Medicine.

University Promotions

Dr. Ray E. Green, 34, was appointed assistant professor of pharmacology at the University of Wisconsin Medical school by the University regents recently. The action was included in the adoption of the 1949-50 budget.

The appointment to full professor of Pediatrics of Dr. Robert Ward at New York University College of Medicine, a unit of the New York University-Bellevue Medical Center, was announced today by Dr. Currier McEwen, Dean of the College. The appointment of Dr. Ward, who is currently an Associate Professor of Pediatrics, became effective September 1st, 1949.

Three long-time members of the University of Wisconsin staff were granted emeritus professorships by the Board of Regents recently.

They are Harold Bradley, emeritus professor of physiological chemistry; Ralph M. Waters, emeritus professor of anesthesia; and Frederick E. Volk, emeritus professor and emeritus librarian of the College of Engineering. Together they have served the University for a total of 105 years.

Dr. Theodore Cornbleet and Dr. Theodore J. Wachowski have been promoted to the rank of professor at the University of Illinois College of Medicine, it has been announced by Dean John B. Youmans.

Faculty members who have been promoted to the rank of associate professor are Dr. Gustav L. Zechel and Dr. James C. Plagge, department of anatomy; Dr. Aaron B. Kendrick, Dr. Louis R. Limarzi, and Dr. Frederick C. Lendrum, depart-

—Continued on following page

ment of medicine; Dr. Paul H. Holinger, Dr. Maurice F. Snitman, and Dr. Marvin J. Tamari, department of otolaryngology; Dr. Maurice Lev and Dr. Lester S. King, department of pathology; and Dr. John J. Fahey, department of orthopaedic surgery.

Duke Neurosurgeon Receives Damon Runyon Cancer Award

Dr. Richard H. Corales, Jr., of New Orleans, La., assistant resident in neurosurgery at the Duke University School of Medicine, has been awarded a Damon Runyon Clinical Research Fellowship.

The award, for one year, from July, 1949-July, 1950, was made on recommendation of the Committee on Growth of the National Research Council.

Dr. Corales will participate in a Duke research program in the field of brain tumors approved by the National Research Council under the direction of Dr. Barnes Woodhall and Dr. Guy Odom, professor and assistant professor of neurosurgery.

Two other post-doctorate fellowships for Duke neurosurgeons have been awarded from the Atomic Energy Commission to Dr. Frank Wrenn of Anderson, S. C., and from the National Institute of Health to Dr. Courtland Davis, of Alexandria, Va.

Drs. Wrenn and Davis will conduct studies in cooperation with the Duke department of biochemistry and division of neurology.

MEDICAL (advertisers index) TIMES

OCTOBER, 1949

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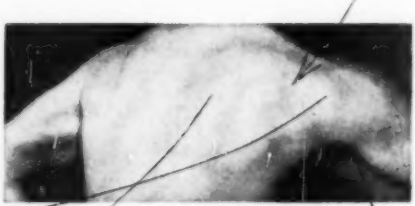

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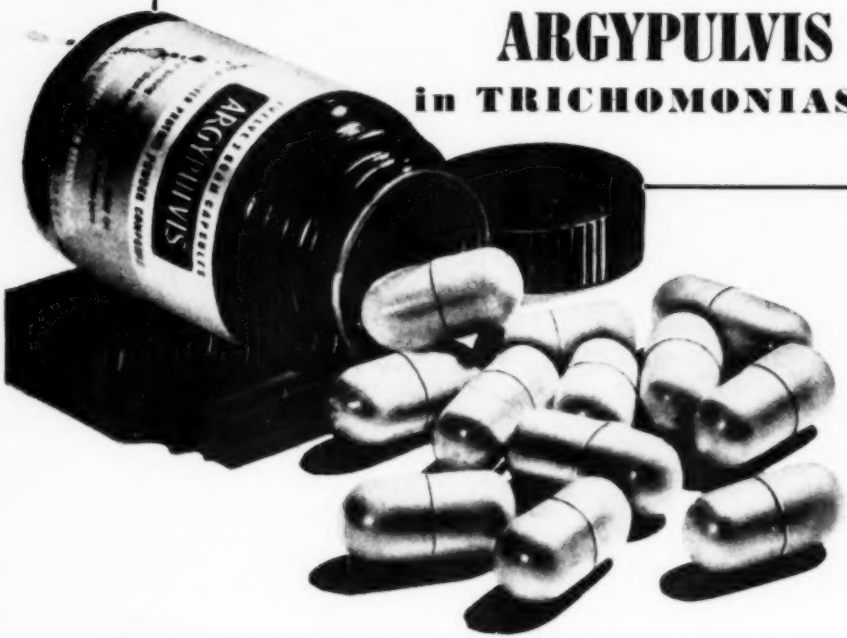

... (as reported by Reich, Button and Nechtow, "Treatment of Trichomonas Vaginalis Vaginitis." *Surgery, Gynecology and Obstetrics*, May, 1947, pp. 891-896)* ...

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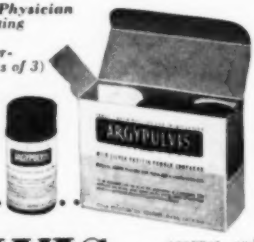

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